Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

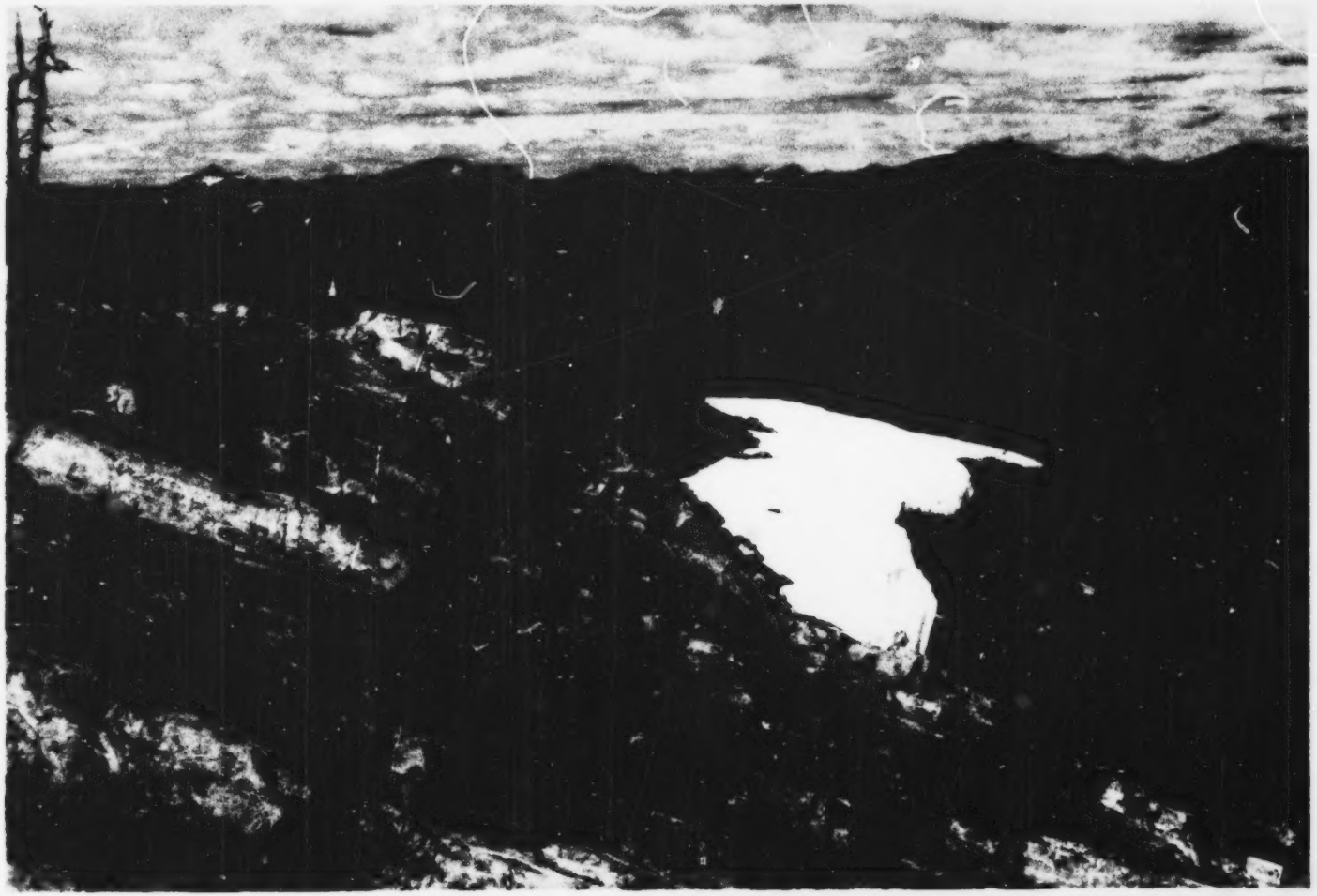
The Purcell Supergroup Fernie west-half Southeastern British Columbia

Part A – Stratigraphy – Measured Sections

By Trygve Höy

1985

Bulletin 76



Frontispiece. Measuring the Lower Aldridge–Middle Aldridge transition, Rabbit Foot Creek area, Moyie Lake sheet (82G/5W) (section 5, Figure 1). Photo: M. Fournier, 1983.

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INTRODUCTION

The Fernie west-half map sheet (82G/W ½) straddles the Rocky Mountain Trench in southeastern British Columbia. The area is generally rugged, with the Purcell Mountains exposed in the western half of the sheet and the Kootenay Ranges of the Rocky Mountains in the eastern half. The Purcell Supergroup, a thick accumulation of dominantly clastic rocks of Helikian age, forms the core of the Purcell Mountains and is exposed in thrust sheets along the western edge of the Kootenay Ranges. Its base is not exposed. The Purcell Supergroup is onlapped unconformably by Hadrynian rocks at the north end of the Fernie map sheet, and by Cambrian or Devonian rocks in the southern half.

This report, Part A of Bulletin 76, includes 26 measured sections of the Purcell Supergroup, and one section of the overlying Cranbrook Formation. The location of the measured sections are shown on Figure 1 and their extent in the Table of Formations on Figure 2. Part B of Bulletin 76 comprises text, maps, and diagrams describing the stratigraphy, sedimentology, structure, and contained mineral deposits of the Purcell Supergroup in Fernie west-half. It is scheduled for publication in 1986.

FIELDWORK AND ACKNOWLEDGMENTS

This report is part of a field study of Purcell Supergroup rocks in southeastern British Columbia that was initiated in 1976 and completed in 1983. Four 1:50 000-scale maps have been published:

(1) Estella-Kootenay King Area, Hughes Range, Southeastern British Columbia (82G/11, 12, 13, 14); T. Höy (1979),

(2) Mount Fisher–Sand Creek (parts of 82G/6, 11, 12); M. E. McMechan (1979),

(3) Moyie Lake Area (82G/W); T. Höy and L. Diakow (1981),

(4) Cranbrook–Sullivan Mine Area (82G/12, 82F/9); T. Hoy (1984).

The sections were measured by T. Höy and L. Diakow with the assistance of M. Fournier, I. Webster, and S. Pattenden. Section 15, the reference section for the Nicol Creek and Van Creek Formations, has been published previously (McMechan, *et al.*, 1980).

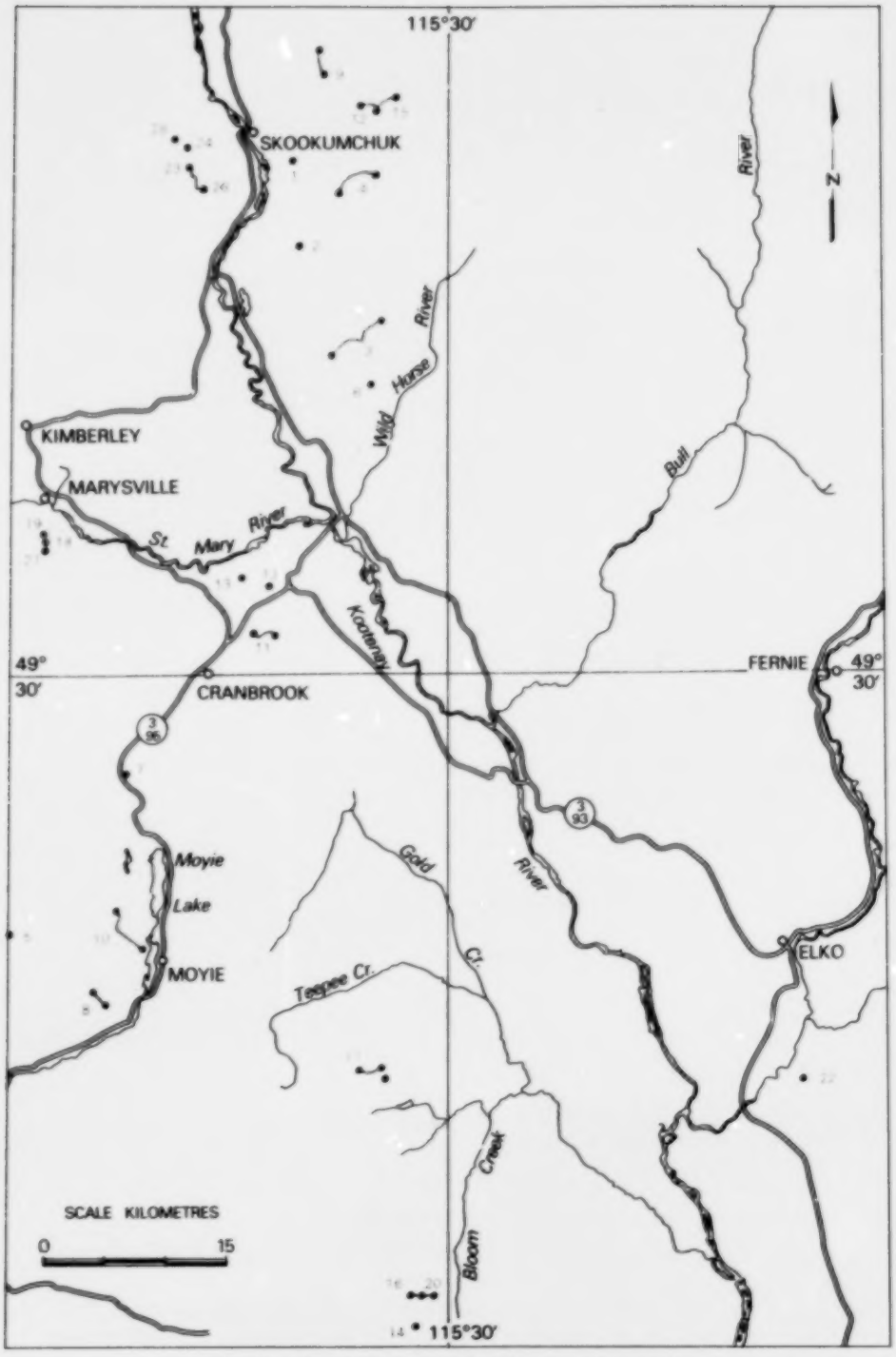

Figure 1. Location of measured sections, Fernie west-half.

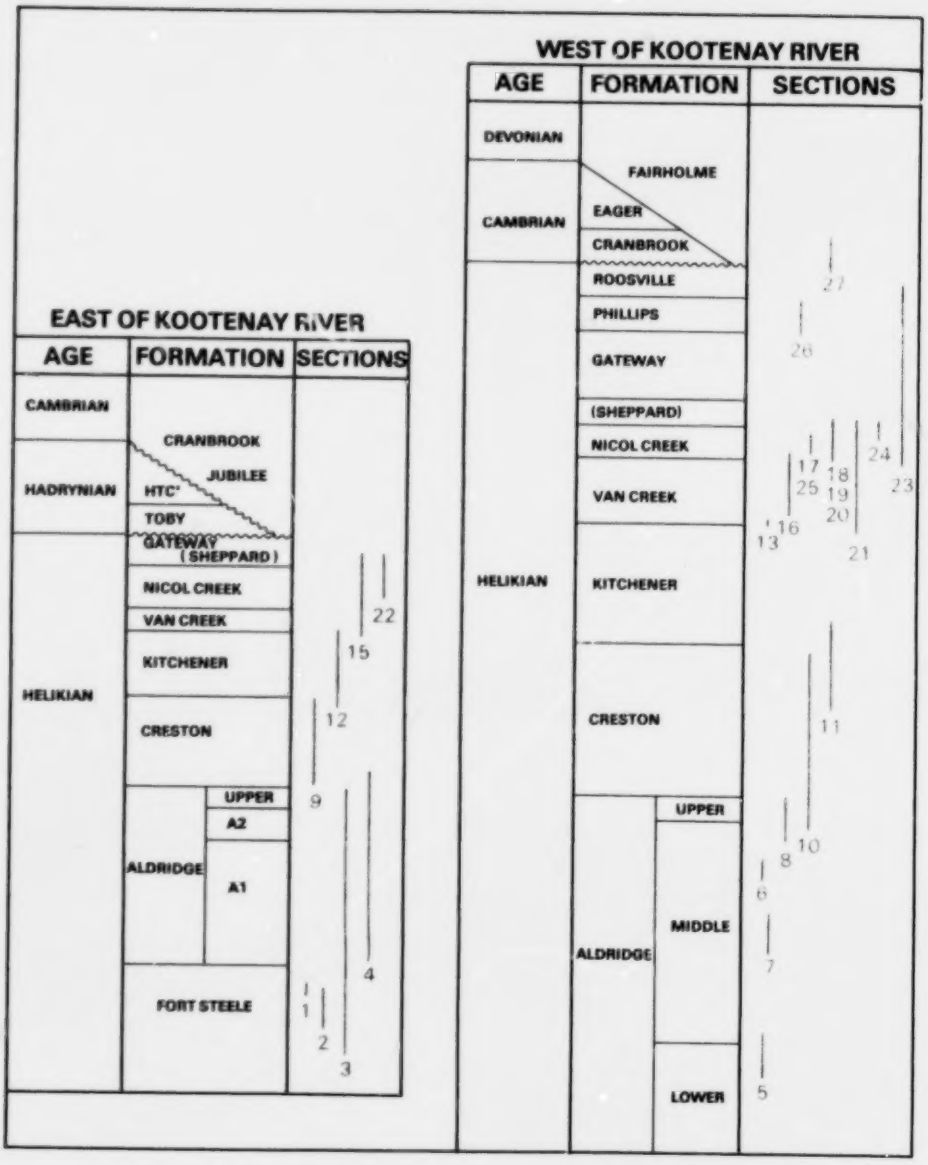

Figure 2. Stratigraphic columns of the Purcell Supergroup, Fernie west-half, showing extent of measured sections.

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SECTION 1 - H78E54
FORT STEELE FORMATION; PREMIER LAKE

Location: 4.5 km south-southwest of south end of Premier Lake, elev. 945 m (3100 ft); NTS Skookumchuck 82G/13E; UTM grid 594750E-5526500N (base) to 595100E-5526625N (top)
Measured by T. Høy (1978), field section H78E54

Unit	Description	Thickness (metres)	Height above base (metres)
	FORT STEELE FORMATION (228.1 m - incomplete)		
36	siltstone, light brown, 10-15 cm thick beds, channels; argillite, dark grey, interlayered with siltstone, flaser and lenticular bedded; quartzite, planar bedded, tangential crossbeds, ripple cross-laminated	7.6	228.1
35	argillite and siltstone, dark grey, lenticular bedded, mud cracks, scour channels	9.1	220.5
34	quartzite, silty and siltstone, 10-15 cm thick beds, ripple cross-laminated, planar laminated, lenticular bedded, flaser bedding	7.0	211.4
33	quartzite, white to light grey, thick to very thick bedded, broad channels at base; quartzite, finer grained, parallel bedding, medium bedded, tangential crossbeds; siltstone, brown to grey interlayers near top	6.7	204.4
	units 33 to 35 are a fining upward sequence		
32	siltstone and argillite, light brown to grey, thin to medium bedded, parallel laminations, minor ripple cross-laminations	6.1	197.7
31	quartzite, white, very thick bedded, large tangential crossbeds, irregular discontinuous bedding; sharp contact with unit 30 below; quartzite, silty, thin to medium bedded at top, gradational contact with unit 32 above	7.9	191.6
	units 31 to 32 are a fining upward sequence		
30	siltstone, tan coloured, medium bedded with medium grey argillite or fine-grained siltstone caps, parallel laminations, very low angle tangential crossbeds, ripple cross-laminations	3.6	183.7
29	quartzite, white, very thick bedded, massive at base, tangential crossbedding throughout, broad scouring channels; grades upward into quartzite, pure to silty, medium to thick bedded, cross-laminations; gradational contact with unit 30 above, forming a fining upward sequence	11.6	180.1

Unit	Description	Thickness (metres)	Height above base (metres)
28	quartzite, white, massive at base in irregular, discontinuous beds that may form broad channels; grades upward into silty quartzite, planar bedded, tangential crossbeds common	15.2	168.5
27	quartzite, pure to silty, medium bedded, massive tangential crossbeds; generally poorly exposed	10.7	153.3
26	siltstone, medium bedded, planar bedding with even-parallel laminations and planar-tabular crossbeds	3.0	142.6
25	generally covered; few exposures of quartzite, white, thin bedded	2.1	139.6
24	quartzite, white, medium to thick bedded, low angle tangential crossbeds above massive beds; minor siltstone interlayers	2.7	137.5
23	covered	1.2	134.8
22	quartzite, medium bedded; commonly cyclical with tangential crossbeds near base, planar-tabular crossbeds above and planar-laminated beds at top of cycle; quartzite with carbonated-cemented quartzite concretions; quartzite, thick bedded, planar beds with tangential crossbedding, irregular, wavy bedded, minor ripple cross-laminations at top of more massive beds	53.3	133.6
21	quartzite, white, medium to thick bedded, broad channels, herringbone crossbeds, tangential crossbeds; quartzite, medium bedded, ripple cross-laminations at base of bed, parallel laminations at top	9.1	80.3
20	siltstone, medium bedded, massive, or crossbedded; quartzite, medium bedded, massive	1.5	71.2
19	quartzite, silty, crossbedded, minor scours and irregular, discontinuous beds; interlayered with siltstone and argillite, rippled surfaces, mud cracks, lenticular beds	18.3	69.7
18	quartzite, feldspathic, medium thick beds with crossbedding at base, parallel laminations or ripple laminations in middle and siltstone or argillite tops; units 18 to 20 form a fining upward sequence	3.0	51.4
17	covered	4.3	48.4
16	siltstone, lenticular bedded, ripple cross-laminations, parallel laminations; interlayered with approximately 20% argillite and silty argillite, finely laminated, mud cracks, commonly with silt lenticles; graded siltstone-argillite couplets	5.2	44.1

Unit	Description	Thickness (metres)	Height above base (metres)
15	siltstone, thin to medium bedded, crossbeds, massive or thinly laminated	4.5	38.9
14	siltstone, thin bedded, ripple cross-laminated, minor scours, thinly laminated; interbedded with silty argillite, dark grey, mud cracks; siltstone-argillite couplets, thin bedded	1.2	34.4
13	quartzite, thick bedded at base, broad channels, graded beds common with crossbedding at base, planar laminations to irregular laminations near centre and ripple cross-laminations at top; silty quartzite near top, ripple crossbedded, gradational contact with unit 14, forming a fining upward sequence	5.2	33.2
12	covered	1.5	28.0
11	siltstone, thin bedded, massive, or graded beds with laminated bases and ripple cross-laminated tops; silty argillite interbeds	1.5	26.5
10	quartzite, white, thin bedded to medium bedded, broad scours; graded beds common with crossbedding at base and parallel laminations near base	1.8	25.0
9	quartzite, silty, thin bedded, commonly graded, channels; siltstone-argillite graded couplets, very thin bedded, comprise 10% of unit; quartzite, thin bedded, graded, some crossbedding	2.7	23.2
8	quartzite, silty, coarser grained than unit 9, medium bedded, massive to graded beds; minor siltstone, thin bedded, some ripple cross-laminations	4.5	20.5
7	quartzite, white, thick to very thick bedded, generally massive to discontinuous wavy bedded, broad channels, minor crossbedding; occasional thin siltstone partings; units 7 to 9 form a fining upward sequence	5.5	16.0
6	siltstone, thin to medium bedded, graded beds with wavy to irregular laminations at base and massive to finely laminated siltstone at top; argillite, minor partings	0.9	10.5
5	quartzite, pure to feldspathic, medium to thick bedded, massive to faint irregular laminations, occasional reverse grading, minor ripple cross-laminations; rare siltstone partings	3.3	9.6
4	quartzite, silty, thin bedded at base, coarsening upward to quartzite, thick bedded with broad channels, low angle crossbedding and herringbone crossbedding; rare siltstone laminations near base	2.1	6.3

Unit	Description	Thickness (metres)	Height above base (metres)
3	quartzite, silty, thin bedded, low angle crossbedding, graded and reverse graded beds	1.5	4.2
2	quartzite, medium bedded, generally massive, broad scours, faint tangential crossbedding near tops of beds	1.5	2.7
1	quartzite, white, medium bedded, coarse (1 mm) grained, occasional crossbeds, broad scours, occasional argillite partings; units 1 to 3 form a coarsening upward cycle	1.2	1.2

SECTION 2 - H78E55
FORT STEELE FORMATION; LAZY LAKE

Location: 3.5 km west of Lazy Lake, elev. 975 m (3200 ft); NTS Skookumchuck 82G/13E; UTM grid 595400E-5519525N (base) to 595800E-5519400N (top)
Measured by T. Høy (1978), field section H78E55

Unit	Description	Thickness (metres)	Height above base (metres)
	FORT STEELE FORMATION (651.0 m - incomplete)		
30	quartzite, rusty weathering, poorly exposured	6.0	651.0
29	covered	17.8	645.0
28	siltstone, thin bedded, lenticular bedded; interlayered with argillite, dark brown, laminated; minor silty quartzite, thick to medium bedded	30.0	627.2
27	covered	24.0	597.2
26	quartzite, medium bedded, graded, planar-tabular, crossbedded or massive; graded quartzite-siltstone beds at top of unit	7.6	573.2
25	covered	13.7	565.6
24	quartzite, medium bedded, planar-tabular surfaces, crossbedded (partially covered)	6.0	551.9
23	covered	9.0	545.9
22	quartzite, white, thick bedded, massive, irregular, commonly scoured surfaces	6.1	536.9
21	covered	29.0	530.8
20	quartzite, white, very thick bedded; coarse grained, even to discontinuous bedded, occasional large high angle crossbeds, not graded	9.1	501.8
19	covered	30.0	492.7
18	quartzite, thick bedded, broad channels, discontinuous beds, massive or with trough crossbeds	30.0	462.7
17	quartzite, silty, interlayered with thin-bedded siltstone at base of unit, lenticular bedded; grades upward into silty quartzite, thin to medium bedded, planar bedded, with tangential crossbedding; quartzite, medium bedded at top of unit, broad scours, high angle crossbeds, or massive	26.0	432.7
16	siltstone (feldspathic) interbedded with argillite; graded siltstone-argillite couplets, thin bedded, with mud-cracked surfaces; silt scours cutting argillite are common, lenticular bedding	13.7	406.7

Unit	Description	Thickness (metres)	Height above base (metres)
15	diorite sill, green, fine grained	15.0	393.0
14	covered	62.5	378.0
13	quartzite, silty, thin bedded, thinly laminated, minor ripple cross-laminations; siltstone, light brown, thin bedded, commonly graded with dark grey argillite tops	62.0	315.5
12	quartzite, feldspathic, thick bedded, brown weathering, tangential and trough crossbedding	7.6	253.5
11	quartzite, feldspathic, medium bedded, brown weathering, tangential crossbedding and ripple cross-laminations	18.3	245.9
10	quartzite, feldspathic, thick bedded, large trough and planar crossbeds	4.6	227.6
9	covered	7.6	223.0
8	quartzite, medium bedded, even-parallel beds with parallel laminations, ripple crossbeds, tangential crossbeds; quartzite, thick bedded, massive or trough crossbedding	7.6	215.4
7	covered	9.0	207.8
6	quartzite, silty (?), thick bedded, massive, some large tangential crossbeds (partially covered)	16.8	198.8
5	quartzite, white, thick bedded, massive, or large scale crossbedding (partially covered); somewhat thinner bedded and finer grained at top	25.9	182.0
4	quartzite, thin to medium bedded, tangential and trough crossbedding common; thinner bedded, more silty quartzites near top; thick bedded, massive or trough crossbedded quartzite near base; unit 4 is a gradational fining upward sequence	27.4	156.1
3	quartzite, feldspathic, brown weathering, generally massive	107.0	128.7
2	quartzite, medium to thick bedded with planar and tangential crossbedding	6.7	21.7
1	quartzite, light to dark grey, thick bedded, abundant trough crossbedding that grades upward to ripple cross-laminated bedding, broad scours, climbing ripples, reverse graded bedding is common; siltstone, thin bedded, interlayered with quartzite, mud-chip breccias, silt scours	15.0	15.0

SECTION 3 - H78E58, H78E62
FORT STEELE FORMATION, ALDRIDGE FORMATION; MOUNT BILL NYE

Location: Mount Bill Nye, north of Herbert and Tackle Creeks, elev. 1 082 m (3550 ft) at base; NTS Cranbrook 82G/12; UTM grid 598200E-5509925N (base) to 602600E-5513350N (top)
Measured by T. Höy (1978), field sections H78E58, H78E62

Unit	Description	Thickness (metres)	Height above base (metres)
	ALDRIDGE FORMATION (3 058.6 m)		
	unit PCa3 (upper Aldridge) (324.5 m)		
106	argillite, silty, dark grey, rusty weathering, containing minor light green silt lenticles; siltstone-argillite graded beds, buff to pink, approximately 1 cm thick, lenticular bedded; minor light green graded siltstone	131.0	4 286.8
105	generally covered; dark grey argillite scree	117.3	4 155.8
104	argillite, dark grey, massive to faintly laminated; scattered outcrops	76.2	4 038.5
	unit PCa2 (564.4 m)		
103	siltstone, buff, massive, sharp contact with unit 104	24.4	3 962.3
102	quartzite, silty, and siltstone, light brown, buff weathering, medium bedded, flute casts, massive near base of beds with ripple cross-laminated tops	13.7	3 937.9
101	siltstone, argillaceous, buff coloured to light green; minor argillite, dark grey	41.1	3 924.2
100	covered; massive siltstone scree	61.0	3 883.1
99	siltstone, light grey, buff weathering, thin bedded, massive to faintly laminated	76.2	3 822.1
98	quartzite, silty, medium to thick bedded, commonly graded with dark grey argillite tops	38.1	3 745.9
97	siltstone and silty quartzite, medium bedded, commonly graded; interbedded with siltstone, buff to pale green, thin bedded and laminated	82.3	3 707.8
96	covered; buff-weathering siltstone scree	16.8	3 625.5
95	siltstone, argillaceous, light brown, thin bedded; minor quartzite, medium bedded, graded	15.2	3 608.7
94	argillite, dark grey; siltstone, light brown to pale green, laminated, minor quartzite, medium to thick bedded, massive to graded	29.0	3 593.5

Unit	Description	Thickness (metres)	Height above base (metres)
93	quartzite, light grey, thick bedded, generally massive, with thin argillite partings; siltstone, medium bedded, buff weathering near base of unit	33.5	3 564.5
92	argillite, dark grey, rusty weathering, massive to faintly laminated	76.2	3 531.0
91	quartzite, light grey, thick bedded; grading upward through unit into quartzite, silty, buff weathering, finer grained, medium bedded with dark grey argillite partings	4.6	3 454.8
90	argillite, dark grey, rusty weathering; with some siltstone, buff weathering, medium bedded, massive layers	21.3	3 450.2
89	siltstone and arkosic wacke; light grey to green, medium to thick bedded, generally massive or graded; minor light green argillite interlayers	4.6	3 428.9
88	argillite, dark grey, massive to faintly laminated	8.2	3 424.3
87	feldspar porphyry dyke, pink, aphanitic groundmass	3.0	3 416.1
86	siltstone, buff coloured, thick bedded; interlayered with dark grey argillite and silty, laminated argillite	15.2	3 413.1
	unit PCalf (294.8 m)		
85	argillite, dark grey; minor siltstone, buff coloured, generally massive, somewhat granular	35.0	3 397.9
84	argillite, dark grey; interlayered with siltstone, buff coloured, somewhat dolomitic, massive or containing numerous sedimentary structures including ripple cross-laminations, well-layered graded beds, lenticular bedding with dolomitic buff siltstone lenticles in darker grey argillaceous siltstone or argillite	53.3	3 362.9
83	argillite, dark grey, rusty weathering	18.3	3 309.6
82	siltstone, buff coloured, laminated or massive, dolomitic in part, mud-chip breccias, graded beds, ripple cross-laminations are common	12.2	3 291.3
81	quartz wacke, quartz arenite, medium to thick bedded; siltstone, buff coloured, medium bedded, generally massive to graded, interbedded with argillaceous siltstone, green, laminated to massive at top of unit; unit B1 is a fining upward sequence	9.1	3 271.9
80	siltstone, buff coloured	6.0	3 270.2

Unit	Description	Thickness (metres)	Height above base (metres)
79	argillite, dark grey to black, laminated	30.5	3 264.0
78	argillite, dark green, massive to faintly laminated	24.4	3 233.5
77	argillite, dark grey, parallel laminated, interbedded with siltstone, light brown, medium bedded, massive to faintly laminated; minor quartz wacke layers approximately 30 cm thick, massive	30.5	3 209.1
76	argillite, dark grey, rusty weathering, laminated; minor buff-weathering argillaceous and dolomitic siltstone layers	13.7	3 178.6
75	argillite, silty, medium grey, laminated; interbedded with buff-weathering argillaceous and dolomitic siltstone	22.8	3 164.9
74	siltstone, feldspathic wacke, green to brown tinged, thick to very thick bedded, commonly graded; minor siltstone, thin bedded and laminated	13.7	3 142.1
73	siltstone, buff to medium grey weathering, generally massive	24.4	3 128.4
72	porphyritic feldspar dyke	0.9	3 104.0
	unit PCald (283.4 m)		
71	siltstone, massive, thick bedded, slightly dolomitic; interlayered dark argillite and laminated dolomitic siltstone	32.9	3 103.1
70	porphyritic feldspar dyke	1.2	3 070.2
69	dolomitic argillite and siltstone, buff weathering, dark grey, laminated argillite	42.7	3 069.0
68	dolomitic siltstone, buff weathering	6.0	3 026.3
67	dolomitic siltstone; quartzite, graded beds with rip-up clasts at base	15.2	3 020.3
66	feldspathic arenite, quartz arenite, light grey to white, generally massive, thick bedded, with rare flute casts; grades upward to 3 m of laminated, buff-weathering dolomitic siltstone; (unit PCale)	19.8	3 005.1
65	dolomitic siltstone, buff weathering, thick bedded, interbedded with dark grey, laminated argillite	19.8	2 985.3
64	dolomitic siltstone, buff weathering, medium bedded	10.7	2 965.5
63	porphyritic feldspar-hornblende dyke	2.4	2 954.8

Unit	Description	Thickness (metres)	Height above base (metres)
62	dolomitic siltstone, argillite, thinly laminated	22.8	2 952.4
61	dolomitic siltstone, buff weathering, minor graded siltstone-argillite beds	20.0	2 929.6
60	siltstone, grey weathering to buff weathering, dolomitic in part	53.3	2 909.6
59	dolomitic siltstone, buff weathering; ripple cross-laminated, tangential crossbeds, silt scours, irregular discontinuous laminations, graded beds; argillite beds grading up to dolomitic argillite are common; lenticular bedded	36.6	2 856.3
	unit PCalc (1 399.5 m)		
58	siltstone, buff to grey weathering, thin bedded and parallel bedded; massive, rusty weathering, grey siltstone near top	106.7	2 819.7
57	porphyritic feldspar dyke	6.1	2 713.0
56	siltstone, grey to slightly buff weathering, thin to medium bedded, generally massive or with faint irregular laminations	22.9	2 706.9
55	siltstone, grey to slightly buff weathering, thin to medium bedded; interlayered with minor dark grey laminated argillite; basal half of unit is predominantly argillite, rusty weathering, lenticular bedded with grey siltstone laminations, grey to buff weathering, ripple cross-laminated	126.5	2 684.0
54	siltstone, grey to buff weathering, medium to thick bedded, minor ripple cross-laminations in thinner beds	50.3	2 557.5
53	argillaceous siltstone, grey, blocky, thin bedded, minor lenticular bedding; rare thin, dark limestone layers; grades upward into dark grey, rusty weathering laminated argillite with only minor blocky argillaceous siltstone	134.1	2 507.2
52	fault zone, sheared, calcite veining; thin porphyritic dyke	1.5	2 373.1
51	siltstone, grey, with fine white laminations; rare silty lenticular bedding	7.6	2 371.6
50	argillite, dark grey to medium grey, rusty weathering, massive to finely laminated	94.5	2 364.0

Unit	Description	Thickness (metres)	Height above base (metres)
49	siltstone, grey to tan coloured; interlayered with dark grey argillite; at 1 051 m, limestone, limestone pods in siltstone, irregular (algal ?) laminations, crossbedding	35.0	2 269.3
48	argillite, well bedded, dark grey, rusty weathering	71.6	2 234.5
47	limestone, dark grey to black; dolomite; silty dolomite; dolomitic siltstone; massive siltstone; limestone rip-up clasts in silty matrix	18.9	2 162.9
46	siltstone, light green, massive, thin to medium bedded, hornfelsed	45.7	2 144.0
45	Moyie sill - gabbro	27.4	2 098.3
44	siltstone, hornfelsed	6.1	2 070.9
43	Moyie sill - gabbro	205.0	2 064.8
42	siltstone, pink to light grey to green (hornfelsed), laminated	107.0	1 859.8
41	dyke, felsic, aphanitic	1.5	1 752.8
40	calcareous and dolomitic siltstone, grey to buff weathering, cross-laminated; calcareous argillite, dark grey, with cleavage commonly formed by thin discontinuous white calcite veinlets	61.0	1 751.3
39	argillite, shale, black, calcareous in part, pyritic	134.0	1 690.3
38	partly covered; few outcrops of black shale, argillite	60.0	1 556.3
37	argillite, shale, black, massive or thinly laminated, carbonaceous, well bedded	70.0	1 496.3
36	dyke, felsic	1.5	1 426.3
35	covered	4.6	1 424.8
	unit PCalb (51.8 m)		
34	dolomitic siltstone, green, even-parallel bedding, generally massive; chert, thin bedded, well layered or as pods in dolomitic siltstone	51.8	1 420.2
	unit PCala (140.2 m)		
33	siltstone, buff weathering, very fine laminations	27.4	1 368.4
32	dyke, felsic	25.9	1 341.0

Unit	Description	Thickness (metres)	Height above base (metres)
31	siltstone, dark grey, very thin bedded, laminated, commonly forms thin graded siltstone-argillite couplets	86.9	1 315.1
	FORT STEELE FORMATION (1 228.2 m - incomplete)		
30	argillite, dark grey, somewhat silty, lenticular bedding, abundant mud cracks (or synereses de-watering structures); graded siltstone-argillite couplets	96.0	1 228.2
29	quartz arenite, white, massive, thick bedded; somewhat thinner bedded and finer grained at top	6.1	1 132.2
28	quartz arenite, white, massive, very thick to thick bedded	6.0	1 126.1
27	quartz wacke, buff coloured, medium bedded, some trough crossbeds and scour channels; interbedded with dark grey argillite; mud cracked, lenticular bedded; graded siltstone-argillite couplets	53.3	1 120.1
26	argillite, dark grey, thin bedded, abundant mud cracks, silt scours, graded couplets, silt lenticles; siltstone, thin bedded, tan coloured	64.0	1 066.8
25	argillite, dark grey, graded beds, mud cracks, silt scours	32.0	1 002.8
24	argillite, black, lenticular bedded, interlayered with thin-bedded silty quartzite, forms base of unit, these coarsen upward to thin-bedded quartz wacke, then thin to medium-bedded tangentially crossbedded quartz wacke and arenite; top two-thirds of unit fines upward, to thin-bedded, tangentially crossbedded quartz wacke and siltstone	39.6	970.8
23	quartz arenite, white to tan, thick bedded, with abundant crossbedding, rare argillite partings	30.5	931.2
22	covered	13.7	900.7
21	quartz arenite, white, grey, green tinged, medium to thick bedded; abundant cross-laminations, tangential crossbeds, wavy non-parallel bedding (broad channels); minor interlayered siltstone	40.0	887.0
20	covered	16.8	847.0
19	quartz arenite, white, thick bedded; similar to unit 21	27.4	830.2
18	covered	7.6	802.8

Unit	Description	Thickness (metres)	Height above base (metres)
17	quartz arenite; similar to unit 21 above; fairly abrupt change from unit 16 below	50.3	795.2
16	siltstone, buff coloured, cross-laminated; interlayered with argillite, dark grey, containing abundant silt lenticular beds	70.1	744.9
15	siltstone-argillite, similar to unit 16 above; grades upward to predominantly argillite, mud cracks; lenticular silt beds, interlayered with minor thin-bedded siltstone, cross-laminated	61.0	674.8
14	argillite, black, mud cracks abundant; with minor thin-bedded siltstone, ripples, cross-laminations	25.9	613.8
13	fining upward unit (to include unit 14 at top), from 2-3 m of quartz arenite, thick bedded, massive; to medium-bedded quartz arenite and wacke, parallel laminations, tangential crossbeds; to quartz wacke and siltstone, thin bedded with thin black argillite interlayers	36.6	587.9
12	argillite, dark grey to black, abundant mud cracks, lenticular silt beds, silt scours; siltstone-argillite graded beds, thin bedded; siltstone, thin bedded, cross-laminations	21.3	551.3
11	quartz arenite, light grey to white, very thick bedded, generally massive, broad irregular surfaces defining channels	30.5	530.0
10	quartz arenite, medium to thick bedded, non-parallel bedding surfaces, massive or with broad tangential crossbeds, trough crossbeds	25.9	499.5
9	quartz arenite, quartz wacke, white to grey, thick to medium bedded, irregular bedding surfaces, tangential and trough crossbeds, rare rippled surfaces, commonly massive; siltstone interlayers near top	54.8	473.6
8	quartz arenite, white, very thick to thick bedded, irregular indistinct bedding surfaces, large irregular tangential and trough crossbeds with steeply inclined (30-40°) foreset beds	106.7	418.8
7	covered	213.4	312.1
6	quartz arenite, thick to medium bedded at base, crossbeds; largely covered in top part	13.8	98.7
5	covered	6.0	84.9
4	quartz arenite, thick bedded, irregular indistinct bedding surfaces, broad trough crossbeds	36.6	78.9

Unit	Description	Thickness (metres)	Height above base (metres)
3	quartz wacke and arenite, feldspathic arenite, medium to thick bedded, parallel laminated beds alternate with planar-tabular crossbeds, minor trough crossbeds	9.0	42.3
2	quartz arenite, feldspathic arenite, medium bedded, planar-tabular crossbeds, tangential crossbeds; unit coarsens upward	25.3	33.3
1	feldspathic arenite, dark grey, thick to medium bedded, parallel laminations, planar and tangential crossbeds; coarsening upward beds with sharp lower contact, tangential crossbeds at base, and parallel laminations at top are common	8.0	8.0

SECTION 4 - H78E63
ALDRIDGE FORMATION; WASA CREEK SECTION

Location: 1.3 km north-northwest of confluence of Wasa Creek and Wolf Creek, elev. 1 520 m (5000 ft) at base; NTS Skookumchuck 82G/13E; UTM grid 598750E-5523770N (base) to 601760E-5525400N (top)
Measured by T. Høy (1978), field section H78E63

Unit	Description	Thickness (metres)	Height above base (metres)
	CRESTON FORMATION (219.5 m - incomplete)	22.9	2 107.4
38	quartzite, white, thin to medium bedded, generally massive; minor siltstone, green		
37	argillite, dolomitic, buff weathering; interlayered with siltstone, green, laminated	16.8	2 084.5
36	argillaceous siltstone, grey-green, thin bedded, laminated to massive; argillite, dark grey, with greater than 50% siltstone lenses and layers	91.4	2 067.7
35	siltstone-argillite graded beds, thin bedded, green to grey; dolomitic siltstone	61.0	1 976.3
34	siltstone, light green, very thin to thin bedded, interlayered with argillite, dark grey, mud cracks; siltstone-argillite graded beds common	27.4	1 915.3
	ALDRIDGE FORMATION (1 887.9 m - complete)		
	unit PCa3 - upper Aldridge (173.4 m)		
33	argillite, dark grey, rusty weathering, occasional green siltstone interlayers; 3 m of buff to pink-weathering dolomitic siltstone at base	61.0	1 887.9
32	argillite, dark grey, rusty weathering; rare green siltstone laminations	61.0	1 829.6
31	argillite, similar to unit 32; thin bedded, siltstone layers and lenses are common	30.0	1 765.9
30	siltstone, thick bedded, with dark grey argillite interbeds	10.7	1 735.9
29	covered (argillite scree)	10.7	1 725.2
	unit PCa2 (242.2 m)		
28	quartz wacke, medium to thick bedded, basal scours, load casts and flute casts; thin-bedded siltstone and silty argillite interbeds (comprises approximately 20% of unit 28)	77.7	1 714.5

Unit	Description	Thickness (metres)	Height above base (metres)
27	argillite, dark grey, rusty weathering; minor siltstone layers	18.3	1 636.8
26	quartz wacke, thin bedded; argillite, dark grey, rusty weathering (approximately 35% of unit 26)	33.5	1 618.5
25	generally covered; few outcrops of thin-bedded siltstone and black argillite	70.0	1 585.0
24	argillite, black, rusty weathering, laminated	6.1	1 515.0
23	feldspathic arenite, thick bedded, massive; minor siltstone, light grey, laminated; unit 23, fines upward to feldspathic wackes, thin to medium bedded, with increasingly greater proportion of interbedded siltstone and silty argillite	36.6	1 508.9
	unit PCalf (553.9 m)		
22	argillite, black, generally rusty weathering; green siltstone lenses and layers common near base	204.2	1 472.3
21	siltstone, tan weathering, well layered; medium bedded; three quartz arenite layers, 30-40 cm thick, occur near base	32.0	1 268.1
20	argillite, dark grey, rusty weathering, thinly laminated, in 12-15 m thick sections; argillaceous and dolomitic siltstone, buff weathering, with green silt lenses and layers, scours, graded beds	240.0	1 236.1
19	argillite, dark grey to black, finely laminated to irregular bedded, minor graded siltstone-argillite lenses; minor buff-weathering dolomitic siltstone and argillite	77.7	996.1
	unit PCald (342.6 m)		
18	siltstone, argillaceous siltstone, thin bedded, grey to buff weathering, somewhat dolomitic, thinly laminated, massive, or graded siltstone-argillite layers; rare cross-laminations, scours	67.0	918.4
17	silty argillite, light brown to pink, thin bedded, thin parallel laminations and thin wavy laminations, scours at base of unit; argillaceous siltstone, dark grey-brown, thinly laminated; siltstone, pink, massive, thin bedded, minor graded beds, scours; feldspathic wacke (2 m thick), white to pink tinged, massive to thinly laminated, medium bedded	137.0	851.4
16	siltstone, pink tinged, massive to finely laminated, contains rusty weathering dolomitic siltstone pods with crossbeds	103.6	714.4

Unit	Description	Thickness (metres)	Height above base (metres)
15	argillaceous and dolomitic siltstone, buff weathering, thin bedded, thin wavy laminations, graded beds, tangential crossbeds, silt scours, lenticular beds, brown-weathering dolomitic siltstone pods	35.0	610.8
	unit PCalc (325.9 m)		
14	partially covered; argillite, dark grey, rusty to grey weathering, thinly laminated, silty in part	45.7	575.8
13	argillite, dark grey to black, rusty weathering, laminated with abundant irregular and discontinuous white calcite streaks	91.4	530.1
12	argillite, light to medium grey, well-defined thin beds, thinly laminated; thin interbeds of tan-coloured graded siltstone layers and lenses	48.8	438.7
11	argillite, phyllite, dark grey, rusty weathering, sections are very carbonaceous, massive to thinly laminated	140.0	389.9
	unit PCalb (158.5 m)		
10	argillite, medium to dark grey, with thin irregular laminations of dolomite; up section, dolomitic and limy layers 3-4 cm thick are common	61.0	249.9
9	argillite, light green to buff coloured, dolomitic, soft and fissile; argillite, dark grey, brown weathering, massive, with thin irregular laminations and pods of calcite	13.7	188.9
8	dolomite, argillaceous, brown weathering, thinly laminated	13.7	175.2
7	shale, light grey-green, very thin bedded, buff to brown weathering, with thin dolomite partings; interbedded with thinly laminated argillaceous dolomite; grades upward from predominantly shale at base to carbonate at top	15.2	161.5
6	quartzite, white (vein ?), widely spaced layering with thin shale horizons; includes angular, irregular disoriented fragments of brown-weathering dolomite	7.6	146.3
5	argillite, black, thinly laminated, no carbonate, white quartz 'sweats' are common	7.6	138.7
4	argillaceous dolomite, buff to brown weathering, thick laminations; argillite, light grey-green; thin (1-2 cm) chert layers are interlayered with dolomite and argillite	16.8	131.1

Unit	Description	Thickness (metres)	Height above base (metres)
3	dolomitic siltstone, grey, buff to brown weathering, thin bedded, thinly laminated to irregularly laminated; argillite, grey-green, thin bedded, is interlayered with dolomitic siltstone; dolomite and dolomitic siltstone increases higher in unit at expense of siltstone; dark brown-weathering silty dolomite pods occur near top	22.9	114.3
	unit PCala (91.4 m)		
2	argillite, grey-green to dark grey higher in unit, massive to thin to very thin laminations	45.7	91.4
1	quartz wacke, dark grey; siltstone, dark grey, rusty weathering, dolomitic cement; argillite, medium grey-green, massive to laminated, medium bedded; argillaceous siltstone, thin bedded, commonly graded, even-parallel laminations, some lenticular beds	45.7	45.7

SECTION 5 - H83M60
LOWER ALDRIDGE-MIDDLE ALDRIDGE CONTACT; RABBIT FOOT CREEK

Location: Rabbit Foot Creek area, straddling the Moyie Lake sheet (82G/5) and the Grassy Mountain sheet (82F/8); UTM grid 572900E-5462200N, elev. 1 930 m (6340 ft) at base, to 572400E-5463100N at top
Measured by T. Höy (1983), field section H83M60

Unit	Description	Thickness (metres)	Height above base (metres)
	MIDDLE ALDRIDGE (178.5 m - incomplete)		
45	Moyie sill - diorite, massive, medium to coarse grained	33.0	618.0
44	largely covered; quartz wacke, thick bedded, occurs near base and at top	21.0	585.0
43	Moyie sill - diorite, massive, medium to coarse grained; basal contact shows evidence of soft sediment deformation, including flame structures, load structures, and diorite fragments in quartzite matrix; large amphibole crystals and quartz veining also occur at base of diorite	4.5	564.0
42	quartz wacke, rusty weathering, thin to medium bedded, graded with siltstone tops, generally laminated (DE and AD turbidites)	9.0	559.5
41	quartz wacke, grey, thick bedded, commonly graded with laminated siltstone at top (AD turbidites); top of unit, thinner bedded (DE turbidites)	7.5	550.5
40	quartz wacke, siltstone, thin bedded, grey, recessive weathering	6.0	543.0
39	quartz arenite, quartz wacke, thick bedded, grey, commonly graded; siltstone, somewhat rusty weathering, laminated	13.5	537.0
38	gap	10.5	523.5
37	quartz arenite, grey, medium to thick bedded, graded with laminated siltstone tops; siltstone, thin bedded, laminated	6.0	513.0
36	gap	3.0	507.0
35	quartz wacke, grey, medium bedded; minor siltstone, thin bedded, rusty weathering, laminated; latter is more pronounced at top of unit	13.5	504.0
34	quartz wacke, siltstone, grey to rusty weathering, thin to medium bedded, laminated; occasional 15 cm thick grey quartz wacke beds	15.0	490.5

Unit	Description	Thickness (metres)	Height above base (metres)
33	quartz wacke, grey to rusty weathering, thin bedded; siltstone (approximately 10%), thin bedded, rusty weathering, laminated	12.0	475.5
32	similar to unit 33; occasional 15-20 cm thick grey quartz wacke beds	3.0	463.5
31	siltstone, grey, rusty weathering, thin bedded; occasional graded 8-10 cm thick rusty weathering wacke beds	10.5	460.5
30	siltstone, argillaceous, medium grey, well laminated; phyllite; grades up section to a 1 m thick, grey quartz wacke unit, thick bedded	4.5	450.0
29	quartz wacke, grey, medium to thick bedded, graded beds; minor argillaceous siltstone, dark to medium grey, laminated	6.0	445.5
	LOWER ALDRIDGE (439.5 m - incomplete)		
28	siltstone, rusty weathering, thin bedded; occasional thin (7-10 cm) rusty weathering quartz wacke beds	6.0	439.5
27	quartz wacke, grey, graded, very thick bedded	1.5	433.5
26	quartz wacke, grey, grey weathering, thick bedded near base (420-425 m); quartz wacke, siltstone, rusty weathering, graded beds, interlayered with few thin (15-20 cm) grey quartz wacke beds (425-428 m); siltstone, rusty weathering, grey, thin bedded, cleaved, graded beds at top (428-432 m); unit 26 is a fining and thinning upward sequence	15.0	432.0
25	quartz wacke, quartz arenite; light grey weathering; thick bedded at base, grading upward to siltstone, rusty weathering, thin bedded at top	4.5	417.0
24	siltstone, grey, rusty weathering, thin to medium bedded	4.5	412.5
23	gap	10.5	408.0
22	siltstone, light grey to rusty weathering, massive to vague irregular bedding, structurally deformed; very minor argillite, dark grey, thinly laminated	52.5	397.5
21	siltstone, argillaceous, rusty weathering, thin to medium bedded, vague discontinuous wavy bedding	30.0	345.0
20	scattered outcrop; quartz wacke and argillaceous siltstone similar to unit 21	16.5	315.0

Unit	Description	Thickness (metres)	Height above base (metres)
19	quartz and feldspathic wacke, rusty weathering, thick, but irregular and discontinuous bedding, irregular non-parallel laminations; siltstone, grey, rusty weathering, thin bedded with few thick-bedded, grey quartz wacke beds at top of unit	13.5	298.5
18	siltstone, grey, rusty weathering, thick bedded, discontinuous vague bedding, thin laminations to massive; minor thin-bedded, graded siltstone; gap from 265.5 to 277.5 m	48.0	285.0
17	gap	13.5	237.0
16	quartz and feldspathic wacke, generally rusty weathering, graded with laminated siltstone tops; phyllite, rusty weathering, crenulation cleavage imposed on sericite foliation	13.5	223.5
15	siltstone, grey, rusty weathering, even medium bedded, massive	9.0	210.0
14	quartz wacke, grey to slightly rusty weathering, thick bedded, non-graded, massive; siltstone interbeds, grey, rusty weathering, thin bedded	10.5	201.0
13	siltstone, grey, medium bedded; siltstone, rusty weathering, thin bedded	10.5	190.5
12	Moyie sill - diorite, medium grained, massive, generally pervasive chlorite alteration; sharp contact with overlying siltstone; 60 cm chilled, finer grained, more mafic margin at top	19.5	180.0
11	gap	12.0	160.5
10	quartz wacke, grey, thick bedded, massive to vague irregular laminations	3.0	148.5
9	siltstone, very rusty weathering, thin bedded, commonly graded, occasional crossbeds	7.5	145.5
8	siltstone, grey, very rusty weathering, thin bedded and well cleaved (crenulation cleavage imposed on sericite foliation); grades up through fine-grained quartz and feldspathic wacke, grey, medium bedded; to thick-bedded grey quartz wacke at top of unit	18.0	138.0
7	siltstone, feldspathic wacke, white to rusty weathering, medium bedded, parallel to discontinuous irregular laminations, crossbeds	3.0	120.0
6	siltstone, rusty weathering, thin bedded, laminated, recessive weathering	19.5	117.0

Unit	Description	Thickness (metres)	Height above base (metres)
5	quartz wacke, rusty weathering, thick bedded at base; grades up through siltstone, rusty weathering, well cleaved with interbeds of 15-20 cm thick quartz wacke; to thin-bedded, very rusty weathering, massive to laminated siltstone	19.5	97.5
4	siltstone and phyllite, rusty weathering, thin bedded, interbedded with 5-8 cm thick rusty weathering feldspathic wacke	4.5	78.0
3	quartz wacke, grey, rusty weathering, medium bedded, massive to graded; minor siltstone, thin bedded, laminated; (AE turbidites)	18.0	73.5
2	quartz and feldspathic wacke, grey, rusty weathering, medium bedded with well defined bedding planes, massive to laminated; siltstone, rusty weathering, massive to only faintly laminated throughout, but more pronounced at top; crenulation cleavage and early foliation are pronounced	37.5	55.5
1	siltstone, quartz wacke, grey, rusty weathering, thin to medium bedded, graded with finer grained laminated siltstone tops; phyllite, crenulation cleavage	18.0	18.0

SECTION 6 - H78E75
'KOOTENAY KING QUARTZITE,' MIDDLE ALDRIDGE FORMATION; LAKIT MOUNTAIN

Location: 1 km east of Lakit Mountain; NTS Cranbrook 82G/12; UTM grid 601550E-5507800N, elev. 2 286 m (7500 ft) at base to 602250E-5508200N, elev. 1 980 m (6500 ft) at top
Measured by T. Høy (1978), field section H78E75

Unit	Description	Thickness (metres)	Height above base (metres)
	Kootenay King member, MIDDLE ALDRIDGE FORMATION (250.9 m - incomplete)		
16	argillite, dark grey, medium bedded, generally massive, or graded with silty argillite at base and black argillite at top	16.8	250.9
15	argillite, dark grey, well layered; argillaceous siltstone (largely covered)	13.7	234.1
14	quartz arenite, wacke, dark grey, massive	9.7	220.4
13	largely covered; siltstone, dark grey to tan coloured in scree	9.8	210.7
12	quartz arenite, wacke, dark grey, generally massive	8.2	200.9
11	covered; dark grey quartzite and siltstone scree	9.1	192.7
10	quartz arenite, white to tan coloured, well bedded to irregular bedded surfaces; quartz wacke, gererally tan coloured, medium bedded at base of unit	6.1	183.6
9	gabbroic sill	1.5	177.5
8	quartz wacke, medium grey, thin to medium bedded; minor siltstone	13.7	176.0
7	argillite, dark grey, laminated; minor dolomitic siltstone, medium grey, buff to grey weathering	54.9	162.3
6	quartz arenite, wacke, dark grey, medium bedded	22.9	107.4
5	siltstone, buff coloured	35.0	84.5
4	quartz arenite, white, thick bedded; fines upward through thinner bedded quartz wacke to siltstone of unit 5	6.1	49.5
3	fining upward unit; basal 4 m - quartz arenite, white, massive, with no discernible bedding surfaces; grades upward through quartz wacke and siltstone, buff coloured, massive to medium to thick bedded, to fissile, laminated shale at top	12.2	43.4

Unit	Description	Thickness (metres)	Height above base (metres)
2	quartz arenite, wacke, dark grey, thick bedded, graded beds with dark grey, fissile, laminated tops; breccia with large (to 30 cm) angular siltstone and argillite clasts suspended in medium to coarse-grained quartz wacke	5.2	31.2
1	siltstone, buff coloured, ripple cross-laminated, massive or well laminated	26.0	26.0

SECTION 7 - H83M61
MOYIE SILL, MIDDLE ALDRIDGE FORMATION; LUMBERTON

Location: Just east of Highway 3/95 at turn-off to Lumberton 13 km south of Cranbrook, elev. 1 006 to 1 160 m (3300 to 3800 ft); NTS Moyie Lake 82G/5; UTM grid 582000E-5475200N at base to 582200E-5475400N
Measured by T. Höy (1983), field section H83M61

Unit	Description	Thickness (metres)	Height above base (metres)
13	siltstone, quartz wacke, thick bedded, generally massive, interbedded with dark grey argillaceous siltstone	146.25	438.75
12	covered	84.0	292.5
	Moyie sill (66.0 m)		
11	diorite, coarse grained with bladed hornblende crystals several centimetres long; diorite becomes finer grained near top, with a chilled margin from 204-208.5 m	13.5	208.5
10	diorite, medium grained, to coarse grained at top; abundant quartz-calcite veining	6.0	195.0
9	diorite, variable grain size; commonly hydrothermally altered with associated quartz-calcite veining; sharp irregular basal contact with a very coarse-grained phase at contact; vertical fractures with quartz-calcite veining and associated hydrothermal alteration cuts across sill	46.5	189.0
8	siltstone, wacke, medium to thin bedded, graded; hornfelsed; biotite overgrows cleavage	6.0	142.5
7	covered (diorite ?)	29.25	136.5
6	siltstone, argillaceous, thin bedded, dark grey; occasional medium-bedded wacke; euhedral biotite cuts across cleavage	14.25	107.25
5	covered	60.0	93.0
4	argillite, silty, dark grey, well cleaved	3.0	33.0
3	quartz arenite, quartz wacke, massive, thick bedded	7.5	30.0
2	quartz wacke, massive, thick bedded; interbedded with two thick sections of siltstone, dark grey, well cleaved, with euhedral biotite overgrowths	9.0	22.5
1	quartz wacke, grey, thick bedded, massive, with well-defined basal flute casts; 350°, 008°, 352° current directions; generally becomes finer grained up section, to siltstone, fine grained, dark grey, thinly laminated, well cleaved	13.5	13.5

SECTION B - H82M5
MIDDLE ALDRIDGE, UPPER ALDRIDGE; MIDWAY MINE AREA

Location: 3.5 km west of south end of Moyle Lake above Midway mine; NTS Moyle Lake 82G/5; UTM grid 580750E-5456200N, elev. 1 506 m (4940 ft) at base; 580150E-545700N, elev. 1 768 m (5800 ft) at top
Measured by T. Höy (1982), field section H82M5

Unit	Description	Thickness (metres)	Height above base (metres)
	UPPER ALDRIDGE (421.5 m - complete)		
44	quartz wacke, feldspathic wacke, grey, medium bedded, massive to commonly graded with dark grey argillite tops, synereses cracks in argillite	4.5	687.0
43	gap; scattered outcrops of grey siltstone	9.0	682.5
42	quartz arenite, wacke, grey, fine grained, very thin to thin bedded, massive or graded; siltstone, tan with lenticular coarser siltstone lenses	3.0	673.5
41	siltstone, grey weathering to somewhat rusty weathering, thin bedded, thinly laminated to massive	28.5	670.5
40	gap	51.0	642.0
39	siltstone, medium grey, rusty weathering, generally thin bedded; argillite, dark grey, very thinly laminated, forms partings or layers up to 1 mm thick between siltstone layers; thick (0.6 m) grey siltstone bed with planar-tabular crossbed occurs at 590 m	6.0	591.0
38	gap	18.0	585.0
37	siltstone, argillaceous, medium grey, rusty weathering, well bedded, thinly laminated; argillite, dark grey, forms partings and very thin (approximately 1 mm) layers	52.5	567.0
36	gap	1.5	514.5
35	siltstone, grey, rusty weathering, very thin to thin bedded with widely spaced light tan lenticular siltstone lenses, 1-2 mm thick	13.5	513.0
34	siltstone, argillaceous, dark grey, rusty weathering, very thin bedded, lenticular bedded; minor argillite	54.0	499.5
33	siltstone, argillaceous in part, light to medium grey, rusty weathering, very thin bedded, lenticular bedded	28.5	445.5
32	quartz wacke, grey, rusty weathering, thin bedded, laminated	3.0	417.0

Unit	Description	Thickness (metres)	Height above base (metres)
31	siltstone, grey, rusty weathering, very thin bedded, graded with fine-grained siltstone or argillite tops; argillaceous siltstone, rusty weathering, laminated	85.5	414.0
30	argillaceous siltstone, dark grey, rusty weathering, with thin 1-2 mm white siltstone layers	18.5	328.5
29	siltstone, medium grey, rusty weathering, thin laminations, bedded, graded with thin 1-2 mm dark grey argillite tops, thinly laminated; quartz wacke, grey, thin bedded, graded	44.5	310.0
	MIDDLE ALDRIDGE (265.5 m - incomplete)		
28	quartz wacke, grey, rusty weathering, thin to medium bedded, graded; argillaceous siltstone, dark grey, rusty weathering; minor quartz arenite, grey and thick bedded	9.0	265.5
27	gap; small exposure of grey quartz wacke at 222 m	40.5	256.5
26	quartz wacke, grey weathering, thin to medium bedded, minor grading at tops of beds	3.0	216.0
25	argillaceous siltstone, medium or dark grey, rusty weathering, medium bedded, thinly laminated; minor grey quartz wacke	12.0	213.0
24	quartz wacke, feldspathic wacke, argillaceous siltstone, rusty weathering, thin to medium bedded	3.0	201.0
23	quartz wacke, siltstone, grey, rusty weathering, medium to thick bedded near centre of unit	4.5	198.0
22	argillaceous siltstone, rusty weathering, thinly laminated	25.5	193.5
21	quartz wacke, siltstone, rusty weathering, thin bedded, commonly graded with argillite tops; minor dark grey, rusty weathering argillite is more pronounced at top	7.5	168.0
20	gap	6.0	160.5
19	quartz arenite, grey, thick bedded, massive; grades upward to medium bedded, rusty weathering quartz wacke; units 19 to 22 form a fining upward sequence	4.5	154.5
18	gap	15.0	150.0
17	siltstone, argillaceous, dark grey, rusty weathering, thin bedded; siltstone, medium grey, forms thin (2-3 cm) lenses	3.0	135.0

Unit	Description	Thickness (metres)	Height above base (metres)
16	gap	7.5	132.0
15	quartz and feldspathic wacke, medium grey, rusty weathering, thin bedded, laminated; grades upward to argillaceous siltstone, rusty weathering, thinly laminated	4.5	124.5
14	gap; small exposure of rusty weathering argillaceous siltstone	7.5	120.0
13	argillaceous siltstone, dark grey; quartz wacke, grey, graded beds; rusty weathering, thin bedded	3.5	112.5
12	gap	10.5	109.0
11	argillaceous siltstone, dark grey, rusty weathering, very thin to thin bedded	1.5	98.5
10	quartz arenite, grey, medium to thick bedded, graded; minor grey siltstone interlayers	4.5	97.0
9	gap; small (1 m) exposures of interbedded quartz wacke and argillaceous siltstone, rusty weathering, thin bedded	9.0	92.5
8	quartz arenite, wacke, grey, thick bedded, massive or with thin discontinuous dark argillaceous streaks near tops of beds	9.0	83.5
7	quartz arenite, grey, medium to thick bedded, massive to minor grading at top of beds; grades up section through quartz wacke, grey, thin to medium bedded, with thin 3-4 cm dark siltstone interlayers; to argillaceous siltstone, dark grey, rusty weathering, thin to very thin bedded with only 10-20% thin quartz wacke beds; sharp basal contact with unit 6	19.5	74.5
6	argillaceous siltstone, dark grey, rusty weathering, very thin bedded; very thin dark laminations	15.0	55.0
5	quartz arenite, wacke, grey, medium to thick bedded, massive or with minor graded tops; interbedded quartz wacke, medium grey, and argillaceous siltstone, rusty weathering, generally thin bedded at top of unit	17.5	40.0
4	gap	4.5	22.5
3	quartz arenite, grey, thick bedded, massive at base; quartz wacke, medium bedded, with thin (2-3 cm) siltstone layers at top of unit	13.5	18.0
2	gap	3.0	4.5
1	argillaceous siltstone, dark grey, rusty weathering, very thin bedded, laminated; minor medium grey 2-3 cm thick siltstone layers	1.5	1.5

SECTION 9 - H79E52, H79E59
CRESTON FORMATION; PREMIER LAKE

Location: 1 to 2 km north of Premier Lake, elev. approximately 1 070 m (3500 ft); NTS Skookumchuck 82G/13; UTM grid 597250E-5533950N at base to 597100E-5535950N at top
Measured by T. Höy (1979), field sections H79E52, H79E59

Unit	Description	Thickness (metres)	Height above base (metres)
	CRESTON FORMATION (1 213.7 m - virtually complete, from basal Creston to near Creston-Kitchener transition zone)		
44	siltstone, pale watery green colour, calcareous, thin bedded, massive in part; poorly exposed	38.0	1 213.7
43	silty quartzite, siltstone, green, thin bedded; interbedded with silty argillite, dark grey, laminated	23.0	1 175.7
42	argillaceous siltstone, dark grey, thinly laminated	12.2	1 152.7
41	quartzite and siltstone, interbedded, white and light green	15.2	1 140.5
40	diorite sill, fine to medium grained, generally massive	80.0	1 125.3
39	quartzite, white to pale green, interbedded with siltstone, green	7.6	1 045.3
38	covered	4.6	1 037.7
37	generally covered; some exposures of siltstone, green, generally massive beds, asymmetrical ripple marks; few thin white quartzite layers	13.7	1 033.1
36	siltstone, green, fine grained, somewhat argillaceous, parallel bedded, small fining upward cycles	12.2	1 019.4
35	quartzite, white, thick bedded; siltstone, green, thin bedded, scour channels, ripple marks	20.0	1 007.2
34	covered	20.0	987.2
33	similar to unit 35	18.3	967.2
32	fining upward cycle; quartzite, white, thick bedded, massive at base; grading up to interbedded siltstone, light green, thin to medium bedded, and white quartzite	21.3	948.9
31	interbedded silty quartzite, light green, cross-laminated; siltstone, green; dolomite-cemented white sandstone layer, 15 m thick, planar crossbedded	45.4	927.6

Unit	Description	Thickness (metres)	Height above base (metres)
30	siltstone, argillaceous; phyllite	7.0	882.2
29	fining upward cycle; quartzite, white to pale green, thick bedded, massive to vague tangential crossbeds, minor rip-up clasts at base; grading up to interbedded siltstone and quartzite, green, thin to medium bedded	10.7	875.2
28	fining upward cycle; siltstone, green, thick to medium bedded, commonly graded beds with some basal scours; grading up to silty argillite and well-cleaved phyllite	22.9	864.5
27	covered	5.5	841.6
26	silty quartzite, green to white, thin bedded, rip-up clasts, crossbedded, scours	18.3	836.1
25	siltstone, purple, mauve, green, fine grained, synereses cracks, minor ripple cross-laminations; interbedded with quartzite layers near top	32.0	817.8
24	coarsening upward cycles, 3-10 m thick, with purple and green siltstones near base; grading up through ripple cross-laminated siltstones and quartzites; to massive, thick bedded, massive quartzite at top of some cycles, and at top of unit 24	46.0	785.8
23	quartzite, white, medium to thick bedded, broad trough crossbeds, tangential crossbeds, rip-up clasts; minor siltstone, purple to green, laminated and ripple cross-laminated	70.0	739.8
22	generally covered; minor interbedded siltstone and quartzite, purple and green, tangential crossbeds, rip-up clasts, scours; minor white quartzite	95.0	669.8
21	covered	30.0	574.8
20	siltstone, purple, green, interbedded with quartzite, green; crossbeds, rip-up clasts, scours	27.4	544.8
19	siltstone, purple, generally massive or finely laminated, small crossbeds; minor quartzite, green, discontinuous beds	55.0	517.4
18	quartzite, purple, white; crossbedded	6.0	462.4
17	siltstone, purple, green, massive, thin bedded, vague laminations; minor white quartzite at top	7.6	456.4
16	siltstone, brown, purple, laminated; minor quartzite scours	7.6	448.8

Unit	Description	Thickness (metres)	Height above base (metres)
15	coarsening upward cycle; massive to laminated purple and green siltstones near base, with some broad scours, grading upward to thin-bedded purple siltstone interbedded with some white quartzite layers; cross-beds, rip-up clasts, graded beds, and scour-and-fill structures common in top of unit	21.3	441.2
14	coarsening upward cycle, similar to unit 15	75.0	419.9
13	siltstone, green, irregular and discontinuous bedding; minor white quartzite	23.0	344.9
12	siltstone, green, thinly laminated; minor thin, brown-weathering silty dolomite layers, occasional rip-up clasts	12.2	321.9
11	covered	12.2	309.7
10	siltstone, green, grey, thin bedded, graded beds; minor lenticular beds, silt scours, reverse graded beds	15.2	297.5
9	partially covered; argillite, dark grey to black, with thin siltstone lenticles; siltstone, grey, thin bedded; graded siltstone-argillite beds, lenticular bedding, occasional scours and synereses cracks	67.0	282.3
8	siltstone, thick to medium bedded, with dark grey argillite partings; dark grey argillite sequence near centre	33.5	215.3
7	siltstone, green, medium to thick bedded, thinly laminated; rare argillite laminations, graded	22.8	181.8
6	argillite, dark grey, faintly laminated; minor green siltstone interbeds	3.6	159.0
5	siltstone, green, medium to thick bedded; beds commonly graded with light green siltstone at base and darker green phyllite at top; very thin-bedded siltstone-argillaceous siltstone couplets occur near top	27.4	155.4
4	siltstone, olive green, thin bedded, laminated; minor dark grey argillite	30.5	128.0
3	siltstone, dark grey to green, thin bedded, synereses cracks throughout	10.7	97.5
2	argillite, grey to dark grey, thin bedded; minor lenticular bedded siltstone	21.3	86.8
1	siltstone, grey, green, thin bedded, commonly graded with dark grey argillite caps, synereses cracks	65.5	65.5

SECTION 10 - H82M3
UPPER ALDRIDGE, CRESTON FORMATION; MOYIE LAKE

Location: Ridge northwest of Moyie, west side of Moyie Lake; NTS Moyie Lake 82G/5; elev. 991 m (3250 ft) at base to 1 326 m (4350 ft) at top; UTM grid 584100E-5460750N at base to 582000E-5463800N at top
Measured by T. Höy (1982), field section H82M3

Unit	Description	Thickness (metres)	Height above base (metres)
	KITCHENER FORMATION (37.5 m - incomplete)		
92	siltstone, dolomitic, 'watery' green, tan to grey weathering; 5 m thick silty dolomite, 'watery' green, brown weathering, occurs at base	19.5	2 562.5
91	siltstone, dolomitic, pale 'watery' green, grey to pale tan weathering	18.0	2 543.0
	CRESTON FORMATION (2 208 m - complete)		
90	siltstone, green, graded beds, thinly laminated; siltstone with dolomitic cement near top	31.5	2 525.0
89	siltstone, pale green, generally massive, thin bedded; minor interbedded purple and green siltstone at top	9.0	2 493.5
88	siltstone, argillaceous, green, commonly graded	18.0	2 484.5
87	siltstone, green, grading up to purple siltstone; commonly graded with green siltstone bases and purple argillaceous tops, mud cracks; argillaceous siltstone, purple, mud-chip breccias, mud cracks; possible fault, with units 87 to 92 a repetition of 79 to 86	45.0	2 466.5
86	gap; small outcrop of pale green, dolomitic siltstone	24.0	2 421.5
85	siltstone, pale 'watery' green, grey to brown weathering; dolomitic in part; argillaceous siltstone, grey to brown weathering with minor green siltstone layers	13.5	2 397.5
84	argillaceous siltstone, 'watery' green, dolomitic, finely laminated; minor thin brown-weathering dolomitic siltstone layers	7.5	2 384.0
83	gap	4.5	2 376.5
82	quartz wacke, grey, thick bedded	3.0	2 372.0
81	partial exposure; siltstone, green, thinly laminated, grey weathering; dolomitic near top	18.0	2 369.0
80	quartz arenite, white, coarse grained, with scours and channels, in green argillaceous siltstone; up section, siltstone, green, thin bedded, graded, mud cracks	10.5	2 351.0

Unit	Description	Thickness (metres)	Height above base (metres)
79	siltstone, green, thinly laminated; minor quartz wacke beds, green; at top, argillaceous siltstone, purple, laminated, mud cracked	18.0	2 340.5
78	fining upward sequence; at base, siltstone, green, thin bedded, with minor darker green wacke beds; grading up to purple argillaceous siltstone, thin bedded, mud cracks, with minor silt wacke beds throughout	13.5	2 322.5
77	argillaceous siltstone, dark grey to purple, thin bedded; with minor mauve silt wacke beds; mud cracks, mud-chip breccias, (well cleaved)	61.5	2 309.0
76	siltstone, grey to mauve, medium bedded, competent, with dark purple, irregular and discontinuous laminations, mud cracks; siltstone, green, medium bedded, competent, interlayered with thin-bedded, tan and mauve siltstone and argillaceous siltstone	13.5	2 247.5
75	gap	11.0	2 234.0
74	siltstone, pale mauve to light green, thin bedded, in part, slightly dolomitic; overlain by more competent silt wacke, mauve, thicker bedded, with darker purple, irregular, discontinuous laminations; minor quartz arenite beds; mud cracks, mud-chip breccias	12.0	2 223.0
73	siltstone, green, competent, thin to medium bedded, generally graded; mauve silt wacke beds 10-15 cm thick; up section, thin-bedded mauve quartz wacke, graded	50.0	2 211.0
72	gap	6.0	2 161.0
71	argillaceous siltstone, dark grey to dark purple, thin bedded; thin light grey quartzite layers throughout, mud-chip breccias, mud cracks (scattered exposures)	46.5	2 155.0
70	gap	13.5	2 108.5
69	siltstone, mauve, thick bedded; white quartz arenite lenses, 5 cm thick throughout (similar to unit 67)	4.5	2 095.0
68	gap	7.5	2 090.5
67	siltstone, mauve to greyish purple, thin bedded, graded, mud cracks, ripple marks; interbedded with thin quartz arenite beds, white, crossbedded, scour-and-fill structures, commonly graded with green tops and capped by dark grey, mud-cracked argillaceous siltstone	30.0	2 083.0
66	gap	13.5	2 053.0

Unit	Description	Thickness (metres)	Height above base (metres)
65	coarsening upward sequence; base, argillaceous siltstone, dark purple, irregular discontinuous bedding, with thin white quartz arenite lenses throughout; grading up through green siltstone, thin bedded, rusty weathering; to quartz wacke and siltstone, medium bedded, mauve coloured with purple lenses throughout	10.5	2 039.5
64	gap	15.0	2 029.0
63	scattered exposures; argillaceous siltstone, purple to grey, irregular bedding; thin white quartz arenite lenses and layers throughout	7.5	2 014.0
62	gap; small exposure, quartzite, white, thin bedded; in dark grey to purple argillaceous siltstone	28.5	2 006.5
61	siltstone, wacke, mauve, competent, medium bedded, darker purple irregular laminations throughout, mud cracks; minor green siltstone; grades upward to dark grey argillaceous siltstone	15.0	1 978.0
60	quartz wacke, grey to green, thick bedded, at base; grades upward to siltstone, pale green, thin bedded, mud cracks, ripple marks, interbedded with more massive, mauve siltstone	28.5	1 963.0
59	quartz wacke, siltstone, purple, mauve, minor green, mud cracks, mud-chip breccias, crossbedding, scour-and-fill structures, well laminated	39.0	1 934.5
58	quartz wacke, siltstone, mauve to grey, thin to medium bedded, large trough crossbeds, convoluted bedding, ball-and-pillow structures, load casts, mud cracks; sequence generally fines upward	45.0	1 895.5
57	quartz wacke, medium green, massive, competent, thick bedded, with no siltstone interlayers; grades upward to unit 58	9.0	1 850.5
56	gap	25.5	1 841.5
55	argillaceous siltstone, dark grey, thin bedded, graded siltstone to mud-cracked argillite beds throughout	3.0	1 816.0
54	graded sequence; quartz arenite, coarse grained, grey, thick bedded, massive to faintly laminated at base; quartz arenite, mauve, medium to thick bedded, graded beds with siltstone tops, minor interbedded siltstone layers	46.5	1 813.0
53	unit 53 consists generally of a number of fining upward cycles, 10-15 m thick; base of cycles, quartz arenite, thick bedded, grey. massive to irregularly laminated; grading up through quartz wacke, pale grey to mauve, cross-laminated; into interbedded dark purple argillaceous siltstone and grey siltstone, thin bedded, mud cracks, cross-laminated, graded	81.0	1 766.5

Unit	Description	Thickness (metres)	Height above base (metres)
52	feldspathic arenite, medium green, medium to thick bedded, generally massive; minor thin, light green siltstone interbeds; minor quartz arenite, white, medium bedded	15.0	1 685.5
51	siltstone, quart wacke, dark grey to purple, thin bedded, laminated, mud cracks, mud-chip breccias, silt scours; top, argillaceous siltstone, purple, laminated, mud-chip breccias, mud cracks; minor 15-20 cm thick white quartz arenite beds	16.5	1 670.5
50	siltstone, quartz wacke, mauve, medium to thick bedded, crossbeds, commonly graded with rippled, mud-cracked siltstone tops	27.0	1 654.0
49	quartz wacke, feldspathic arenite, tan to light grey, thick bedded, coarse grained, graded with thin siltstone tops, high angle crossbeds, asymmetrical ripples; mauve, laminated siltstone at top, ripple marks, minor thin white quartz arenite beds	45.0	1 627.0
48	siltstone, feldspathic wacke, mauve to grey, medium bedded, commonly graded, mud cracks, crossbeds; quartz wacke, mauve, thick bedded, massive, broad scours at base; unit includes a number of thin fining upward cycles	51.0	1 582.0
47	unit includes a number of fining upward sequences, and two prominent coarsening upward sequences; fining upward sequences - quartz arenite, quartz wacke, mauve, medium to thick bedded, crossbeds defined by darker streaks, irregular laminations, minor silt interbeds, graded, at base; grading up to thin to medium-bedded siltstone, interbedded with mauve to purple mud-cracked argillite	63.0	1 531.0
46	coarsening upward sequence; siltstone, tan and minor mauve coloured, thin bedded, cross-laminated; to coarser grained, medium-bedded siltstone	48.0	1 468.0
45	quartz arenite, coarse grained, white, thin bedded, graded with thin purple siltstone tops, mud cracks, scour-and-fill structures, channels, crossbeds; overlain by siltstone, mauve, very thin bedded, graded, mud cracks	13.5	1 420.0
44	argillaceous siltstone, siltstone, mauve to purple, thin bedded; grades upward to thin to medium-bedded green and mauve siltstone; unit 44 is base of coarsening upward cycle that includes base of 45	15.0	1 406.5
43	siltstone, mauve, thin bedded, graded with dark argillite tops, mud cracks, mud-chip breccias; interbeds of quartzite, white, graded, coarsens upward with quartzites predominating over siltstone at top	54.0	1 391.5

Unit	Description	Thickness (metres)	Height above base (metres)
42	siltstone, tan, grey, mauve, light green, thin bedded, graded, mud cracks, mud-chip breccias; minor quartz wacke	45.0	1 337.5
41	siltstone, light grey to mauve, minor tan; thin bedded, mud cracks; approximately 10-20% interbedded green, graded siltstone beds	73.5	1 292.5
40	siltstone, mauve, with dark purple argillaceous partings; siltstone, green; argillaceous siltstone, grey with thin mauve streaks; thin bedded, mud cracks	30.0	1 219.0
39	siltstone, green, minor tan, thin bedded	25.5	1 189.0
38	siltstone, tan, medium bedded; minor thin-bedded green siltstone	27.0	1 163.5
37	gap; minor exposure of green siltstone	33.0	1 136.5
36	siltstone, light green to grey, thin bedded, occasional scours and crossbeds	16.5	1 103.5
35	siltstone, green, very thin to thick bedded; siltstone, tan, irregular thin to medium bedded, massive; minor thin-bedded, green quartz wacke	63.0	1 087.0
34	siltstone, tan, thin bedded, massive to thinly laminated	40.5	1 024.0
33	siltstone, quartz wacke, green to grey-green, thin bedded, laminated, massive	70.5	983.5
32	siltstone, quartzite, thin bedded, grey-green, massive or graded, crossbeds, lenticular beds	45.0	913.0
31	quartz wacke, grey, massive, medium bedded, with thin discontinuous siltstone partings	12.0	868.0
30	wacke, grey thin, wavy bedding, massive or scours, rare crossbeds	24.0	856.0
29	gap; thin bedded, grey siltstone and wacke scree	54.0	832.0
28	siltstone, grey, thin to medium bedded, wavy bedding, generally massive	4.5	778.0
27	siltstone, quartz wacke, light grey-green; argillaceous siltstone, medium grey, thin bedded, laminated, lenticular bedded	40.5	773.5
26	argillite, dark grey, thinly laminated, with thin 1-2 mm siltstone lenticles near top	50.0	733.0
25	siltstone, tan, thin bedded; very minor dark grey argillaceous siltstone	31.5	683.0

Unit	Description	Thickness (metres)	Height above base (metres)
24	siltstone, tan, thin bedded; minor dark grey argillaceous siltstone	12.0	651.5
23	argillaceous siltstone, dark grey, mud cracks, lenticular bedded; siltstone, tan, very thin bedded, graded	28.5	639.5
22	siltstone, tan to light grey, thin to medium bedded, graded with dark grey argillite tops, mud cracks	18.0	611.0
21	gap	30.0	593.0
20	siltstone, grey to pale grey-green, medium bedded, graded; argillaceous siltstone, rusty, dark grey, thin bedded with 30-40% light grey siltstone lenticles, irregular laminations, synereses cracks	78.0	563.0
19	gap	64.5	485.0
18	argillaceous siltstone, rusty weathering, dark grey, thin bedded, lenticular bedded, synereses cracks, commonly graded with basal, scouring siltstone units; minor thin, graded siltstone beds	70.5	420.5
17	gap	7.5	350.0
16	argillaceous siltstone, dark grey, rare synereses cracks	4.5	342.5
15	argillaceous siltstone (similar to unit 16), with thin grey siltstone beds	6.0	338.0
14	siltstone, grey. thick bedded, massive, ball-and-pillow structures; medium bedded near top	15.0	332.0
	UPPER ALDRIDGE (240.0 m - complete)		
13	gap	16.5	317.0
12	argillaceous siltstone, medium grey, laminated	67.5	300.5
11	argillaceous siltstone, dark grey, irregular bedding	40.5	233.0
10	argillaceous siltstone, dark grey, rusty weathering; rare white or tan, thin siltstone lenses	52.5	192.5
9	argillite, dark grey, with thin 1-3 mm graded siltstone lenses throughout, rare cross-laminations in siltstone	7.5	140.0
8	argillaceous siltstone, dark grey, rusty weathering, laminated	42.0	132.5
7	argillaceous siltstone (similar to unit 8) with rare thin (10 cm) tan siltstone layers	13.5	90.5

Unit	Description	Thickness (metres)	Height above base (metres)
	MIDDLE ALDRIDGE (77.0 m - incomplete)		
6	argillaceous siltstone (similar to unit 8); minor siltstone, grey, thin bedded, rare crossbeds, graded; siltstone, laminated	17.0	77.0
5	gap	13.5	60.0
4	siltstone, quartz wacke, tan, light grey, medium bedded; argillaceous siltstone (similar to unit 8)	10.5	46.5
3	gap	9.0	36.0
2	siltstone, quartz wacke, tan, grey thick bedded, massive or graded	3.0	27.0
1	argillaceous siltstone, dark grey, rusty weathering, finely laminated	24.0	24.0

SECTION 11 - H82K1
CRESTON AND BASAL KITCHENER FORMATIONS; CRANBROOK

Location: Approximately 3 km northeast of Cranbrook, elev. 1 020 m (3350 ft) at base; NTS Cranbrook 82G/12; UTM grid 592750E-5487150N (base) to 594200E-5487350N (top)
Measured by T. Höy (1982), field section H82K1

Unit	Description	Thickness (metres)	Height above base (metres)
	KITCHENER FORMATION (292.5 m - incomplete)		
42	siltstone, light green, laminated, contains calcite pods; silty dolomite, light grey weathering; dolomite predominates at top of unit	24.0	1 075.5
41	gap	21.0	1 051.5
40	siltstone, dolomitic in part, light green to 'watery' green, minor buff weathering; silty dolomite, brown weathering	48.0	1 030.5
39	scattered outcrops; similar to unit 38	18.0	982.5
38	siltstone, green, laminated; minor brown-weathering dolomitic siltstone at top	12.0	964.5
37	gap	22.5	952.5
36	siltstone, green, thin bedded, laminated, graded beds, generally fissile; minor tan-weathering dolomitic siltstone	39.0	930.0
35	siltstone, green, thin bedded, laminated, graded beds	40.5	891.0
34	siltstone, green, laminated; some beds of dolomitic siltstone, tan to buff weathering	51.0	850.5
33	siltstone, green, graded beds or laminated; dolomitic siltstone, green, brown weathering	16.5	799.5
	CRESTON FORMATION (783.0 m - incomplete)		
32	siltstone, light green, graded, thin bedded, finely laminated in part; minor 'watery' green dolomitic siltstone	93.0	783.0
31	gap	45.0	690.0
30	siltstone, green, thin bedded, graded, mud cracks, mud-chip breccias; minor thin white quartzite beds; at base, purple siltstone, laminated, mud cracks, with thin white discontinuous quartzite layers	30.0	645.0
29	gap	45.0	615.0

Unit	Description	Thickness (metres)	Height above base (metres)
28	gap; boulders of laminated green siltstone	69.0	570.0
27	siltstone, mauve to grey, thin bedded, irregular, uneven laminations; minor dark grey siltstone, fissile, laminated	7.5	501.0
26	gap	10.5	493.5
25	siltstone, grey, thinly laminated, fissile	6.0	483.0
24	gap	27.0	477.0
23	quartzite, light grey, thin bedded, generally massive or with discontinuous wavy laminations	3.0	450.0
22	gap	13.5	447.0
21	quartzite, white to green, thin bedded, discontinuous beds; minor silty quartzite, dark grey, fine grained, mud cracks	22.5	433.5
20	gap	10.5	411.0
19	siltstone and silty quartzite, mauve to medium grey, thin bedded, wavy, discontinuous laminations	25.5	400.5
18	silty quartzite, grey to mauve, medium bedded; minor thin-bedded siltstone, grey to purple, mud cracks	76.5	375.0
17	siltstone, purple to mauve, thin bedded, mud cracks, minor green siltstone	16.5	298.5
16	quartzite, grey, massive, medium to thick bedded, minor siltstone interbeds	25.5	282.0
15	gap	9.0	256.5
14	massive grey quartzite bed	3.0	247.5
13	quartzite, light grey, thick bedded, generally massive; at top, beds are thinner, massive or discontinuously laminated	3.0	244.5
12	silty quartzite, grey, thin to medium bedded, massive to graded; minor fissile sandstone beds	60.0	241.5
11	fining upward sequence, from quartzite, green, thick bedded, massive; through quartzite, grey to mauve, medium bedded, commonly graded with dark grey laminated siltstone tops; to fissile, light green slate at top	13.5	181.5
10	siltstone, argillaceous, light grey-green, fissile, laminated	7.5	168.0

Unit	Description	Thickness (metres)	Height above base (metres)
9	silty quartzite, generally grey, some mauve, medium bedded; minor white quartzite layers	51.0	160.5
8	quartzite, white, thin bedded, irregular, discontinuous beds, scours; minor dark grey to purple, well-laminated siltstone	1.5	109.5
7	silty quartzite, light green to grey, medium bedded, massive, competent	15.0	108.0
6	gap; few exposures of thin-bedded, mauve, purple to dark grey siltstone	13.5	93.0
5	silty quartzite, grey, thin bedded, parallel laminations or discontinuous, wavy laminations; minor fissile, mauve siltstone	7.5	79.5
4	fining upward sequence; white quartzite at base, thin bedded; that grade up through grey silty quartzite, greenish grey silty quartzite; to argillaceous siltstone at top, purple, fissile, thin bedded, laminated	12.0	72.0
3	siltstone, pale green, only minor mauve, discontinuous laminations, thin to medium bedded	22.5	60.0
2	quartzite, green, thin bedded; white quartzite beds, commonly crossbedded, throughout	13.5	37.5
1	siltstone, light grey to green, generally massive, thin bedded; minor silty quartzite, minor green fissile, laminated siltstone	24.0	24.0

SECTION 12 - H79E65
KITCHENER FORMATION; HUGHES RANGE

Location: On western slope and ridge, Hughes Range, approximately 4 km east of Premier Lake; NTS Skookumchuck 82G/13; UTM grid 600700E-553100N, elev. 1 860 m (6100 ft) at base, to 601750E-5530920N, elev. 2 560 m (8400 ft) at top
Measured by T. Høy (1979), field section H79E65 and base of H79E66

Unit	Description	Thickness (metres)	Height above base (metres)
	VAN CREEK FORMATION (30.5 m - incomplete; see Section 15 for continuation)		
35	siltite, argillaceous, commonly graded to argillite producing thin-bedded, finely laminated siltite-argillite couplets commonly with basal scours; siltite, dolomitic, graded beds, thinly laminated, occur occasionally in sections 0.5-1 m thick, buff weathering	30.5	1 058.1
	KITCHENER FORMATION (926.4 m - complete)		
34	dolomite, silty in part, light green, thinly laminated, scours at base of beds; with siltite, light green, dolomitic, and argillite, light green to buff, dolomitic, lenticles and thin discontinuous layers; generally light green to buff weathering	10.7	1 027.6
33	limestone, grey, 1-2 m thick beds; dolomite, silty, irregular wavy laminations, broad scours, buff weathering; dolomite, finely laminated, buff weathering; minor siltstone, grey, graded with argillite tops	41.1	1 016.9
32	siltstone, tan to pale green, overlain by dark grey, mud-cracked argillite, broad scours; silty dolomite, buff weathering, scours, crossbeds, 'molar tooth' structures, overlain by tan, graded siltstone, thin black argillite	42.7	975.8
31	gap	54.9	933.1
30	silty dolomite, tan to grey, basal scours, wavy irregular bedding, crossbeds, graded beds, minor siltstone partings; at 1 429 m, 2 m thick layer of dolomite, oolitic dolomite	45.7	878.2
29	dolomite, silty dolomite, buff weathering, current structures include crossbeds, rip-up clasts; minor fragmental limestone beds; rare thin argillite laminations	40.0	832.5
28	dolomite, buff to brown weathering, light to medium grey calcite veinlets; generally massive, some argillite partings	21.3	792.5

Unit	Description	Thickness (metres)	Height above base (metres)
27	silty dolomite, buff weathering, graded beds, wavy irregular bedding, broad silt scours, 'molar tooth' structures; interbedded with grey siltstone, minor grey limestone	21.3	771.2
26	siltstone, dark grey weathering, very thin bedded, graded, with argillite tops	7.6	749.9
25	dolomitic siltstone, grey to buff weathering, 'molar tooth' structures; silty dolomite, with very thin argillite layers (partings); minor grey limestone	24.4	742.3
24	argillite, dark grey to black; grey limy siltstone	6.1	717.9
23	silty dolomite, tan to light grey weathering, scours, 'molar tooth' structures; minor dolomite, buff weathering, thinly laminated; limestone, grey, rip-up clasts	36.5	711.8
22	siltstone, dolomitic siltstone, grey, tan weathering, graded couplets, 'molar tooth' structures; phyllite, grey, laminated, with approximately 15 cm thick silty quartzite layers; minor grey limestone layers 15-30 cm thick with clear quartz grains, 30 cm thick oolitic limestone at top	42.7	675.3
21	dolomitic siltstone, silty dolomite, light buff to tan, very irregular weathered surfaces, calcite pods are common, 'molar tooth' structures, scours	62.5	632.6
20	siltstone, tan to light grey weathering, graded beds, scours; minor silty dolomite	35.0	570.1
19	dolomite, brown, very irregular weathered surfaces, limestone pods; some graded siltstone to dolomite beds, broad scours	45.7	535.1
18	silty dolomite, light tan to green, broad scours, lenticular bedding, graded siltstone-dolomite beds; minor limy siltstone	18.3	489.4
17	scattered exposures; dolomite, dark brown, rusty weathering, with limestone pods or fragments, graded siltstone-dolomite beds, 'molar tooth' structures; minor quartzite layers throughout	50.3	471.1
16	dolomite, dark reddish brown weathering, massive to well layered; quartzite layers with scouring basal contacts, tangential crossbeds; minor dark argillite at top of graded dolomite-argillite beds	38.0	420.8
15	gap	13.7	382.8
14	diorite dyke	7.6	369.1

Unit	Description	Thickness (metres)	Height above base (metres)
13	dolomite, somewhat argillaceous, dark grey, irregular wavy laminations, minor scours; thin (5-10 cm) graded quartzite layers throughout; tangential crossbeds, scours	24.4	361.5
12	dolomite, dark grey, rusty weathering, massive to wavy bedded, broad scours; dark grey, 40-50 cm thick argillite interbeds	30.5	337.1
11	argillaceous dolomite, dolomitic argillite, dark grey, rusty weathering, finely laminated, abundant scours and broad channels; occasional 5-10 cm thick graded quartzite layers	7.6	306.6
10	dolomite, buff weathering, thinly laminated; quartz grains are common near base; minor 'phyllitic' dolomite beds	50.3	299.0
9	siltstone, pale green, laminated; minor dolomite interbeds, massive, or with wavy bedding, rip-up clasts; zone of interbedded, thin bedded, massive to laminated dolomite, green siltstone, and oolitic limestone	20.0	248.7
8	dolomite, argillaceous dolomite, tan to grey, buff weathering; grading up through light green silty dolomite, siltstone, with abundant current structures; to siltstone, light green, with limestone pods, dolomite interlayers, thin bedded	46.0	228.7
7	dolomite, buff weathering, massive to wavy layering, minor scours, crossbeds; interbedded (on a 1-2 m scale) with dolomitic siltstone, pale green; in general, the relative proportion of siltstone increases up section	40.0	182.7
6	dyke	1.5	142.7
5	dolomite, light grey, buff weathering, thinly laminated or with abundant current structures, including small ripple marks, crossbeds, scours; interbeds of dolomitic siltstone, 1-1.5 m thick, buff to light green, composed of thin, graded siltstone-dolomitic siltstone couplets; outcrop has a pronouced, large scale green-brown striped appearance	40.0	141.2
	CRESTON FORMATION (101.2 m - incomplete)		
4	dolomitic siltstone, siltstone, light to pale green, buff weathering	24.4	101.2

Unit	Description	Thickness (metres)	Height above base (metres)
3	siltstone, light green, well bedded, 0.5 cm thick graded siltstone-argillite beds; occasional thin white quartzite layers; rare buff-weathering dolomitic siltstone layers	48.8	76.8
2	siltstone-argillite graded beds, thin bedded, light green; minor buff-weathering green siltstone	13.7	28.0
1	siltstone, green, graded beds; minor white quartzite layers to 10 cm thick	14.3	14.3

SECTION 13 - H82K2-23
KITCHENER-VAN CREEK CONTACT; CRANBROOK AREA

Location: 3.5 km north of junction of Highways 3/95 and 95A, elev. 1 040 m (3400 ft); NTS Cranbrook 82G/12; UTM grid 591650E-5491850N
Measured by T. Høy (1982), field section H82K2-23

Unit	Description	Thickness (metres)	Height above base (metres)
	VAN CREEK (5.0 m - incomplete)		
8	siltstone, mauve, thin bedded, thin laminations, mud-chip breccias; minor dolomitic siltstone, light grey-green, brown weathering	5.0	30.9
	KITCHENER (25.9 m - incomplete)		
7	siltstone, light green, thin to medium laminations; minor silty dolomite, tan weathering	11.0	25.9
6	siltstone, pale green, rusty weathering, thin laminations; occasional darker green, coarse siltstone laminations	3.6	14.9
5	siltstone, silty dolomite, tan to pale green, buff weathering, thinly laminated, graded beds	4.6	11.3
4	stromatolitic dolomite	0.3	6.7
3	dolomitic siltstone, tan to pale green, slightly rusty weathering, graded beds, mud cracked	1.5	6.4
2	silty dolomite, dark brown to medium grey, thin bedded; cryptal algal structures	0.3	4.9
1	siltstone, silty dolomite, tan to pale green, rusty weathering, thinly laminated, cryptal algal structures; some mud-chip breccias	4.6	4.6

SECTION 14 - D82Y1
KITCHENER-VAN CREEK CONTACT; BLOOM CREEK

Location: Southwest of Bloom Creek, 1.7 km north of U.S.A. border; elev. 1 829 m (6000 ft) at base to 1 920 m (6300 ft); NTS Yahk River 82G/4; UTM grid 607200E-5430100N (base) to 607400E-5430100N
Measured by L. Diakow (1982), field section D82Y1

Unit	Description	Thickness (metres)	Height above base (metres)
	VAN CREEK FORMATION (47.0 m - incomplete)		
10	siltstone, interbedded maroon, green and minor dark green, thin to medium bedded, thinly laminated, mud-chip breccias; rare light grey quartzite beds up to 20 cm thick	6.0	152.0
9	siltstone, dark green, thin bedded, thinly laminated; gradational contact with Kitchener Formation	41.0	146.0
	KITCHENER FORMATION (105.0 m - incomplete)		
8	siltstone, dark green, thinly laminated, interbedded with paler green, tan-weathering dolomitic siltstone in beds to 1 m thick	3.0	105.0
7	siltstone and argillaceous siltstone, green, medium bedded	6.0	102.0
6	dolomitic siltstone, maroon; overlain by siltstone, mauve to maroon, interbedded with green siltstone, mud-chip breccias; rare pale grey quartzite beds up to 18 cm thick	12.0	96.0
5	siltstone and argillaceous siltstone, green, thin to medium bedded, thinly laminated	12.0	84.0
4	gap	27.0	72.0
3	argillaceous siltstone, siltstone, slightly dolomitic, mauve to maroon, mud-chip breccias	6.0	45.0
2	siltstone, pale green, pyritic, thin bedded, thinly laminated; rare quartz arenite lenses, fine grained	19.0	39.0
1	siltstone, mauve to purple, thin to medium bedded, interbedded with dolomitic siltstone beds, maroon, 0.5-2 m thick, mud cracks, cross-laminations, mud-chip breccias, ripple marks; rare quartzite beds up to 18 cm thick, pale grey to red tinged; rare coarse-grained dolomitic quartz arenite lenses	20.0	20.0

SECTION 15 - H79E66
REFERENCE SECTION OF THE NICOL CREEK AND VAN CREEK FORMATIONS; HUGHES RANGE

Location: Along the northeast-trending ridge, just north of unnamed lake, 4.5 km east of the south end of Premier Lake, and 35 km north of Fort Steele; NTS Skookumchuck 82G/13; elev. 2 560 m (8400 ft), UTM grid 601700E-5530730N (base) to elev. 2 350 m (7700 ft), 602900E-5531950N (top)
Measured by T. Höy (1979), field section H79E66

Unit	Description	Thickness (metres)	Height above base (metres)
	SHEPPARD FORMATION (106.7 m - incomplete)		
20	siltite, green, maroon, commonly graded to argillite, lenticular bedding, argillite partings, locally mud cracked, light green to grey weathering; siltite, dolomitic, light green to tan, commonly graded, buff weathering; minor quartzite, grey to white, thin layered, crossbedded; argillite, medium to dark grey, commonly mud cracked	106.7	534.2
	NICOL CREEK FORMATION (168.5 m - complete)		
19	lava, dark green, porphyritic and amygdaloidal flows, 1-2 m average thickness	36.6	427.5
18	siltite, light to dark green, minor maroon coloured; commonly graded with lighter green, more argillaceous tops, lenticular bedding and slit scours common; minor siltite, dolomitic, light tan coloured, buff weathering	7.0	390.9
17	covered, abundant siltite fragments, green and maroon	10.7	383.9
16	argillite, red to medium to dark grey, thinly laminated, very thin bedded (1-2 cm)	7.6	373.2
15	lava, dark green, 1-2 m thick flows; character of flows changes through unit from fine to medium grained, equigranular massive to microporphyry at base; through porphyritic lava flows, to coarser grained, porphyritic and amygdaloidal (quartz-chlorite filled) flows at top	33.5	365.6
14	lava, dark green, porphyritic flows	7.6	332.1
13	lava, dark green, porphyritic and amygdaloidal flows	30.5	324.5
12	lava, dark green, porphyritic, with large feldspar phenocrysts in fine-grained matrix	13.7	294.0
11	lava, dark green, fine to medium grained, equigranular to microporphyry, massive flows, 0.5-1 m thick	21.3	280.3

Unit	Description	Thickness (metres)	Height above base (metres)
	VAN CREEK FORMATION (207.2 m - complete)		
10	siltite, light tan, fine grained, dolomitic, broken and oxidized, buff weathering	16.8	259.0
9	argillite, dolomitic, finely laminated, buff weathering	3.0	242.2
8	siltite, light green, thin bedded, thinly laminated; commonly form small 1-2 m coarsening upward cycles; commonly irregularly bedded	44.2	239.2
7	siltite, argillaceous, tan, finely laminated, mud cracked, buff weathering; argillite, silty, finely laminated, rippled surfaces, buff weathering	4.5	195.0
6	siltite, light green, thin beds, generally 1-2 cm thick, but occasionally to 10 cm; finely laminated, small coarsening upward cycles common, some coarser grained, discontinuous, irregularly bedded siltite lenses	18.3	190.5
5	argillite, silty dark grey, thin bedded, finely laminated	32.0	172.2
4	siltite, argillite, quartzite; this unit is a coarsening upward cycle, from argillite, silty, green, finely and regularly laminated at base; to siltite, thin bedded (5-10 cm), green, rip-up clasts, mud-chip breccia layers, mud cracked; to quartzite, silty, 10-20 cm thick beds, green, regularly to discontinuously bedded at top	57.9	140.2
3	siltite, argillaceous, commonly graded to argillite producing thin-bedded, finely laminated siltite-argillite couplets commonly with basal scours; siltite, dolomitic, graded beds, thinly laminated, occur occasionally in sections 0.5-1 m thick, buff weathering	30.5	82.3
	KITCHENER FORMATION (51.8 m - incomplete; see Section 12)		
2	dolomite, silty in part, light green, thinly laminated, scours at base of beds; with siltite, light green, dolomitic, and argillite, light green to buff, dolomitic, lenticles and thin discontinuous layers; generally light green to buff weathering	10.7	51.8
1	limestone, grey, 1-2 m thick beds; dolomite, silty, irregular wavy laminations, broad scours, buff weathering; dolomite, finely laminated, buff weathering; minor siltstone, grey, graded with argillite tops	41.1	41.1

SECTION 16 - D82Y2
VAN CREEK FORMATION; BLOOM CREEK AREA

Location: 3 km west of south end of Bloom Creek, elev. approximately 1 890 m (6200 ft); NTS Yahk River 82G/4; UTM grid 606900E-5432600N at base to 607500E-5432600N at top
Measured by L. Diakow (1982), field section D82Y2

Unit	Description	Thickness (metres)	Height above base (metres)
	NICOL CREEK FORMATION (see Section 20)		
14	lava, dark green, fragmental at base, overlain by porphyritic lava		
	VAN CREEK FORMATION (791.0 m - incomplete)		
13	siltstone, argillaceous siltstone, green to dark green, thin bedded, thinly laminated, basal scours, truncated beds	21.0	791.0
12	quartzite, white to light grey, thick bedded, ripple marks, cross-laminated	2.0	770.0
11	siltstone, dark green, thin bedded	28.0	768.0
10	dolomitic siltstone, green to grey, reddish brown weathered surface, thin bedded; very minor thinly laminated green siltstone	3.0	740.0
9	siltstone, green, thin bedded	15.0	737.0
8	dolomitic siltstone, grey to green, weathers tan-brown, thin bedded, thinly laminated; basal part cut by fine calcite veinlets, producing irregular, uneven weathered surfaces	2.0	722.0
7	siltstone, green to grey-green, very thin to thin bedded, thinly laminated, weathers to a dullish red-brown colour; overlain by interlayered siltstone and silty quartzite, generally green, weathering to light brown, medium to thick bedded, thin to medium laminations, ripple marks, mud-chip breccias; overlain by siltstone, dark green, thin bedded, thinly laminated	268.0	720.0
6	dolomitic siltstone, similar to unit 10, green to grey, reddish brown weathered surface, thin bedded; interbedded with thinly laminated green siltstone	3.0	452.0
5	siltstone, greenish grey, green, thin graded beds, 2-5 cm thick	77.0	449.0
4	gap	37.0	372.0

Unit	Description	Thickness (metres)	Height above base (metres)
3	siltstone, dark green, thin bedded, thin to medium lamellae, interbedded with medium-bedded siltstone; silty quartzite, siltstone, dark green, medium to thick bedded; siltstone, thin bedded, interbedded mauve and green beds; cross-laminations, ripple marks, cut-and-fill structures, rare magnetite grains near top	234.5	335.0
2	gap	96.0	100.5
1	siltstone, light green with slight orange cast, thin bedded, thinly laminated	4.5	4.5

SECTION 17 - H82K3-24
NICOL CREEK FORMATION; NORTHEAST OF CRANBROOK

Location: 1.5 km west of junction of Highways 3 and 95, elev. 1 300 m (3300 ft); NTS Cranbrook 82G/12; UTM grid 593800E-5491800N
Measured by T. Höy (1982), field section H82K3-24

Unit	Description	Thickness (metres)	Height above base (metres)
	NICOL CREEK FORMATION (217.5 m - incomplete)		
11	siltstone, tan to olive green, thin bedded, massive or graded with tan-coloured coarse fractions and dark green finer fractions	27.0	217.5
10	lava, dark green, massive or amygdaloidal	4.5	190.5
9	wacke, lithic tuff, purple, coarse-grained volcanic fragments	4.5	186.0
8	covered	15.0	181.5
7	lithic tuff, crystal tuff, volcaniclastic siltstone, green, fissile	6.0	166.5
6	partially covered; siltstone, graded tan to olive green, thin-bedded layers	28.5	160.5
5	covered	16.5	132.0
4	similar to unit 6	9.0	115.5
3	lava, medium green, massive or with occasional chlorite-filled amygdules	7.5	106.5
2	lava, dark green, massive, amygdaloidal; covered from 40.5-55.5 m and 69.0-91.5 m	58.5	99.0
1	lava, dark green, 1.5-2.5 m flows, abundant amygdules	40.5	40.5

SECTION 18 - H82K45
SHEPPARD, NICOL CREEK, AND VAN CREEK FORMATIONS; ST. MARY RIVER

Location: 4 km south of Marysville, elev. 1 189 m (3900 ft); NTS Cranbrook 82G/12W; UTM grid 575075E-5494700N
Measured by T. Höy (1982), field section H82K45

Unit	Description	Thickness (metres)	Height above base (metres)
	SHEPPARD FORMATION (36.0 m - incomplete)		
11	siltstone, sandstone, green, thin bedded, commonly graded; dolomitic siltstone, buff weathering	19.5	69.0
10	sandstone, green, thin bedded	9.0	49.5
9	dolomitic sandstone, pale green, buff weathering, very thin bedded	1.5	40.5
8	covered; probable dolomitic sandstone (as unit 4)	6.0	39.0
	NICOL CREEK FORMATION (3.0 m - complete)		
7	lava, green, amygdaloidal, quartz filled	3.0	33.0
	VAN CREEK FORMATION (30.0 m - incomplete)	18.0	30.0
6	siltstone, quartzite, green, thin to medium bedded, commonly graded, rare flute casts, rare synereses cracks in finer grained and thinner bedded siltstone near base of unit		
5	dolomitic sandstone, light green, thin bedded	2.0	12.0
4	covered	4.0	10.0
3	dolomitic sandstone, light green, graded with green phyllite tops, thin bedded	1.0	6.0
2	siltstone, sandstone, green, very thin to thin bedded, thinly laminated, commonly graded, no mud cracks	4.0	5.0
1	dolomitic sandstone, light green, thin bedded, silty quartzite, green, thin bedded	1.0	1.0

SECTION 19 - H82K46
SHEPPARD, NICOL CREEK, AND VAN CREEK FORMATIONS; ST. MARY RIVER

Location: 4 km south of Marysville, elev. 1 189 m (3900 ft); NTS Cranbrook 82G/12W; UTM grid 575100E-5494900N
Measured by T. Höy (1982), field section H82K46

Unit	Description	Thickness (metres)	Height above base (metres)
	SHEPPARD FORMATION (6.0 m - incomplete)		
5	sandstone, light to dark green, chloritic, thin bedded; minor dolomitic sandstone, tan to green, buff weathering	4.5	60.0
4	phyllite, dark green; minor dark green quartz sandstone lenses	1.5	55.5
	NICOL CREEK FORMATION (36.0 m - complete)		
3	lava, dark green, massive or amygdaloidal flows, quartz-filled amygdules; phyllite, dark green, probable tuff	16.5	54.0
2	lava, dark green, quartz-filled amygdules are abundant in top flows; underlain by 2-3 m of massive dark green lava flows, commonly well cleaved; amygdaloidal lava at top of lower flow units that overlie massive or cleaved flows	19.5	37.5
	VAN CREEK FORMATION (18.0 m - incomplete)		
1	siltstone, silty argillite, light green, thin bedded, graded couplets; siltstone, light green, chloritic, with thin 2-3 mm sandstone lenses or layers; no mud cracks or synereses cracks, very thinly laminated	18.0	18.0

SECTION 20 - D82Y3
NICOL CREEK FORMATION; BLOOM CREEK AREA

Location: 2-3 km west of south end of Bloom Creek, elev. 1 890-1 676 m (6200-5500 ft); NTS Yahk River 82G/4; UTM grid 607500E-5432600N at base to 608450E-5432600N at top
Measured by L. Diakow (1982), field section D82Y3

Unit	Description	Thickness (metres)	Height above base (metres)
	GATEWAY FORMATION (incomplete)		
7	siltstone, dark green, weathers reddish orange, thin to thick bedded; siltstone, purple, with disseminated magnetite octahedra, 1 m thick layer approximately 4 m above base of unit; sharp basal contact	8.0	380.0
	NICOL CREEK FORMATION (372.0 m - complete)		
6	lava, dark green, massive or quartz-filled amygdaloidal	157.0	372.0
5	siltstone, dark green, medium to thick bedded, thinly laminated	27.0	215.0
4	crystal and lapilli tuff, predominantly quartz (to 3 mm) and fewer plagioclase (to 1.5 cm) crystals, dark green matrix; lateral facies change to lava, dark green, vesicular, interlayered with dark green volcaniclastic siltstone	21.0	188.0
3	siltstone, dark green, weathers orange, thin to thick bedded, paleocurrent direction - 100°	57.0	167.0
2	lava flows, dark green, commonly massive grading through feldspar porphyritic lava into amygdaloidal lava with occasional feldspar phenocrysts; vesicular lava; chert, light green, interlayered with lava; minor lapilli tuff near base, with large angular fragments, grades up into massive dark green lava	110.0	110.0
	VAN CREEK FORMATION (see Section 16)		
1	siltstone, dark green, siliceous, thin bedded	-	-

SECTION 21 - D82Y4
VAN CREEK FORMATION, NICOL CREEK FORMATION; CHERRY LAKE

Location: 3 km northwest of Cherry Lake; NTS Yahk River 82G/4; UTM grid 602250E-5451050N, elev. 1 875 m (6150 ft) at base, to 604750E-5450550N, elev. 1 740 m (5700 ft) at top
Measured by L. Diakow (1982), field section D82Y4

Unit	Description	Thickness (metres)	Height above base (metres)
	GATEWAY FORMATION (40.0 m - incomplete)		
28	siltstone, sandstone, purple, mauve, green, thin to medium bedded, thin to medium laminae, commonly graded with argillite tops, abundant sedimentary structures including mud-chip breccias, flaser bedding, ripple cross-laminations, ripple marks and graded bedding; sharp contact with unit 27	40.0	1 395.0
	NICOL CREEK FORMATION (420.0 m - complete)		
27	basaltic lava, dark green, generally amygdaloidal (quartz and minor chlorite), minor massive flows, pipe vesicles	188.0	1 355.0
26	coarse volcanic breccia (at base of unit 27), with large (to 1 m) amygdaloidal lava fragments in massive, dark green lava; thin, laminated mauve to tan lapilli tuff layers	4.0	1 167.0
25	covered	23.0	1 163.0
24	siltstone, argillaceous siltstone, dark green, volcaniclastic and tuffaceous, thin bedded	2.0	1 140.0
23	lava, dark green, amygdaloidal; volcanic breccia, amygdaloidal lava fragments in light green to tan siliceous matrix	2.0	1 138.0
22	covered	35.0	1 136.0
21	tuffaceous siltstone, argillaceous siltstone, dark green, thin bedded	6.0	1 101.0
20	covered	37.0	1 095.0
19	lava, dark green, massive, thin to medium bedded; siltstone, dark green or mauve, very thin bedded; minor maroon, laminated argillite	12.0	1 058.0
18	basalt lava, dark green, massive or amygdaloidal; flows commonly grade upward from massive to amygdaloidal (chlorite filled)	48.0	1 046.0

Unit	Description	Thickness (metres)	Height above base (metres)
17	lava, dark green, massive to porphyritic (with up to 4 cm plagioclase crystals); gradational contacts with units 16 below and 18 above	41.0	998.0
16	lapilli tuff, green, thin to very thin bedded, graded beds, commonly contains lithic dark green volcanic fragments to 1 cm across	22.0	957.0
	VAN CREEK FORMATION (926.0 m - complete)		
15	siltstone, dark green to mauve, very thin to thin bedded, thinly laminated	12.0	935.0
14	covered	117.0	923.0
13	siltstone, medium green, thin bedded, magnetite crystals throughout	3.0	806.0
12	covered	285.0	803.0
11	partially covered; siltstone, dark green, thin to medium bedded, pyritic, thinly laminated, mud cracked	75.0	518.0
10	covered	68.0	443.0
9	siltstone, yellow, tan, green, thin bedded, with small orange oxide spots (weathered pyrite ?)	9.0	375.0
8	covered	64.0	366.0
7	siltstone, green, very thin to thin bedded; rare mauve argillite beds a few mm thick; occasional green siltstone beds with disseminated magnetite, mud cracked	23.0	302.0
6	covered	72.0	279.0
5	siltstone, dark green, thin bedded, thinly laminated, mud cracked	12.0	207.0
4	covered	115.5	195.0
3	siltstone, siliceous, dark green, thin to medium bedded, weathers orange coloured, white mica on bedding surfaces, mud cracked, mud-chip breccias, ripple marks	4.5	79.5
2	covered	66.0	75.0
	KITCHENER FORMATION (9.0 m - incomplete)		
1	siltstone, pale green, calcareous, thin bedded, thinly laminated; thin argillite bed, maroon to light green	9.0	9.0

SECTION 22 - H82Y5
NICOL CREEK AND SHEPPARD FORMATIONS; GALTON RANGE

Location: 1.5 km southeast of junction of Raymond Creek and Elk River, elev. 1 067 m (3500 ft); NTS Lake Koocanusa 82G/3; UTM grid 638700E-551500N
Measured by T. Höy (1982), field section H82Y5

Unit	Description	Thickness (metres)	Height above base (metres)
	SHEPPARD FORMATION (49.5 m - incomplete)		
24	quartzite, white, dolomitic siltstone, tan to buff weathering, thick bedded	3.0	165.0
23	dolomitic sandstone, brown and quartzite, white; dolomite, brown weathering, massive, medium to thick bedded	7.0	162.0
22	silty dolomite, tan, fine grained, thin to medium bedded; grades upward through dolomitic siltstone into fine-grained quartzite	1.0	155.0
21	dolomite, brown weathering, algal, stromatolitic	7.0	154.0
20	quartzite, grey, well bedded, low angle tangential crossbeds, irregular laminations; thick bedded at base, thinner bedded near top	7.5	147.0
19	partially covered; few exposures of brown-weathering dolomite, silty dolomite	2.0	139.5
18	quartzite, white, medium to thick bedded, massive to vague irregular bedding	6.5	137.5
17	dolomite, grey, brown weathering, cryptal algal mats; capped by massive brown-weathering dolomite	4.0	131.0
16	quartzite, white, thick bedded	1.0	127.0
15	sandstone, dolomitic, buff weathering, medium bedded, graded beds with quartzite at base and dolomitic siltstone at top	1.5	126.0
14	dolomite, brown weathering, cryptal algal mats; rare stromatolites	4.5	124.5
13	silty dolomite, thin bedded, tan coloured	1.5	120.0
12	covered	3.0	118.5
	NICOL CREEK FORMATION (115.5 m - incomplete)	18.0	115.5
11	lava, green to maroon, massive to amygdaloidal flows; minor calcareous volcaniclastic sandstone		

Unit	Description	Thickness (metres)	Height above base (metres)
10	lava, green, thin flows, abundant calcite-filled amygdules, some vesicles; lava, medium to thick flows, calcite-filled amygdules	3.0	97.5
9	lava, green, chlorite-filled amygdules in fine to medium-grained matrix, some vesicular lava flows; 2 m thick pillow lava flows at 91.5 m, pillows are massive with approximately 1 cm chilled margins; they overlie chert-filled amygdaloidal flow with a thin (2 cm) pale green chlorite-altered top	22.5	94.5
8	poorly exposed; lava flows, green, massive or porphyritic	22.5	72.0
7	poorly exposed; lava flows, porphyritic, massive, vesicular and amygdaloidal, calcite filled	16.5	49.5
6	lava flows, porphyritic grading upward to massive, fine to medium-grained basalt	5.0	33.0
5	lava flows, green, massive	7.0	28.0
4	lava flows, green, 1-2.5 m thick, flows near base of unit are fine grained, massive, grading upward through porphyritic flows with small vesicles to coarsely porphyritic, vesicular flows at top	9.0	21.0
3	lava, green, fine to medium-grained massive flows	2.75	12.0
2	lava, 0.5-1 m flows, coarse grained, porphyritic	6.25	9.25
1	lava, dark green, medium grained, massive	3.0	3.0

SECTION 23 - D82S1, D82S2
PHILLIPS, GATEWAY, AND NICOL CREEK FORMATIONS; SKOOKUMCHUCK AREA

Location: 5 km south of Skookumchuck, elev. 884 m (2800 ft); NTS Skookumchuck 82G/13; UTM grid 586450E-5525600N at base to 587550E-5524000N
Measured by L. Diakow (1982), field sections D82S1, D82S2

Unit	Description	Thickness (metres)	Height above base (metres)
	PHILLIPS FORMATION (67.5 m - incomplete)		
51	siltstone, quartzite, green, micaceous, thinly laminated	15.0	939.0
50	siltstone, maroon and green, thinly laminated	4.5	924.0
49	siltstone, quartzite, argillite interbeds, maroon, micaceous, thinly laminated	16.5	919.5
48	siltstone, silty quartzite, generally green, minor maroon, micaceous, thinly laminated	20.0	903.0
47	quartzite, maroon, thick bedded; interbedded with siltstone and minor argillite, maroon, thinly laminated; mud-chip breccias	11.5	883.0
	GATEWAY FORMATION (802.5 m - complete)		
46	siltstone, silty quartzite, light to dark green, orange weathering, thick bedded, thinly laminated, micaceous bedding surfaces	34.5	871.5
45	siltstone, quartzite, green to grey, medium to thick bedded, thinly laminated, scour-and-fill structures, ripple marks	21.0	837.0
44	siltstone, argillite, black to dark grey, micaceous, thin to medium bedded, thinly laminated	9.0	816.0
43	covered	111.6	807.0
42	dolomite, buff to light grey, medium to thick bedded; rare orange to red-weathering dolomite lenses to 0.5 m thick; minor thinly laminated grey dolomite; 'fish scale' textures, 'cross-webbing' (differential weathering of crosscutting, more siliceous veinlets)	92.4	695.4
41	dolomite, light grey, tan weathering, flaggy, grading upward to more massive, grey dolomite with 'cross-webbing' on weathered surfaces	9.3	603.0
40	siltstone, light grey weathering, medium to thick bedded, ripple marks	15.9	593.7

Unit	Description	Thickness (metres)	Height above base (metres)
39	dolomite, grey to white, thinly laminated, 'sugary textured' and 'cross-webbed' surfaces, rare pisolites to 1 cm diameter	3.3	577.8
38	siltstone, green or faint mauve tinge, medium to thick bedded, micaceous; minor dolomite, grey, thinly laminated; rare salt crystal casts	33.0	574.5
37	dolomitic siltstone, green, interbedded with light grey to white dolomite with 'cross-webbed' surfaces	18.0	541.5
36	dolomite, pale pink to light grey, thinly laminated, minor cross-laminations, oolites, nodular in part	6.0	523.5
35	siltstone, green, medium to thick bedded	4.5	517.5
34	dolomite, light grey to white, finely crystalline, weathers to flaggy buff to tan fragments	2.1	513.0
33	siltstone, green, medium to thick bedded, micaceous; rare dolomitic siltstone, light green to orange weathering	17.4	510.9
32	covered	192.0	493.5
31	siltstone, maroon, thinly laminated; overlain by interbedded stromatolitic dolomite and minor green siltstone	12.5	301.5
30	siltstone and minor quartzite, purple and green; overlain by dolomite, lamellar and stromatolitic; minor interbedded white quartzites near top	14.5	289.0
29	dolomite, lamellar	2.3	274.5
28	dolomite, stromatolitic, buff weathering; dolomite, white, finely granular	2.2	272.2
27	quartzite, white, pyritic	3.7	270.0
26	dolomite, stromatolitic, lamellar	2.3	266.3
25	stromatolitic dolomite overlain by purple quartzite, siltstone, ripple marks, salt crystal casts	3.0	264.0
24	dolomite, massive, overlain by stromatolitic dolomite; thin interbeds of grey to green quartzite, medium to thick bedded	7.5	261.0
23	quartzite, white, thick bedded, ripple marks, cross-laminations	3.0	253.5

Unit	Description	Thickness (metres)	Height above base (metres)
22	dolomite, cream to white, massive	0.7	250.5
21	quartzite, white, thick bedded	3.8	249.8
20	stromatolitic dolomite, thinly laminated dolomite, tan coloured, crossbeds, oolites	1.5	246.0
19	quartzite, white, medium to thick bedded	21.0	244.5
18	stromatolitic dolomite, large pronounced stromalite to 1.5 m diameter; quartzite, purple, medium to thick bedded; minor purple siltstone, ripple marks	1.5	223.5
17	quartzite, green, pyritic, medium to thick bedded; siltstone, light green, 'slabby' weathering; minor silty dolomite and rare isolated stromatolites	37.5	222.0
16	siltstone, light green to mauve, thin to medium bedded	2.5	184.5
15	silty dolomite, light green, thinly laminated; quartzite, light green, resistant, medium to thick bedded; siltstone, light green, medium bedded, ripple marks	11.0	182.0
14	quartzite, grey-green, medium bedded, thinly laminated, white micaceous bedding surfaces	25.5	171.0
13	quartzite, grey-green, medium bedded, thinly laminated; interbedded with dolomitic siltstone; ripple marks	10.5	145.5
12	dolomite, light grey-green, weathers tan to reddish brown, sugary textured	13.5	135.0
11	dolomite interbedded with dolomitic siltstone, ripple marks, cross-laminations	1.5	121.5
10	quartzite, dark green, thick bedded; interbedded with dolomitic siltstone, medium bedded, thinly laminated	10.5	120.0
9	dolomitic siltstone, light green, weathers to buff flaggy fragments, thin bedded, thinly laminated; minor medium bedded coarse sandstone layers, cut-and-fill structures	12.0	109.5
8	sandstone, dark green, rusty weathering, fine grained with disseminated pyrite (?), well bedded, medium bedded	24.0	97.5
7	siltstone, light green, interbedded with dark green argillite, thin bedded, graded beds throughout, ripple marks, mud-chip breccias	4.5	73.5

Unit	Description	Thickness (metres)	Height above base (metres)
	NICOL CREEK FORMATION (69.0 m)		
6	lava, dark green, fine grained, massive or amygdaloidal (siderite filled)	42.0	69.0
5	lava, dark green to faint purple tinge, quartz amygdules rimmed by chlorite	16.5	27.0
4	covered (lava)	1.5	10.5
3	lava, dark green, massive, fine grained, orange oxide spots on weathered surfaces (pyrite ?)	3.0	9.0
2	lava, dark green, massive or quartz amygdules, disseminated pyrite, includes angular reddish brown siltstone xenoliths to 40 cm across	6.0	6.0
	VAN CREEK FORMATION		
1	siltstone, light green, rusty weathering, thin to medium thick laminations; grades upward into green and mauve siltstone; ripple marks, desiccation cracks; locally, contact between Van Creek and Nicol Creek Formations marked by coarse conglomerate with clear rounded quartz, elongate green siltstone, and lava clasts in a purple volcaniclastic sandstone matrix	1.1	-

SECTION 24 - D82S3
NICOL CREEK FORMATION; ECHOES LAKE

Location: 3 km west-southwest of Skookumchuck, elev. 884 m (2900 ft); NTS Skookumchuck 82G/13; UTM grid 586000E-5527900N
Measured by L. Diakow and T. Höy (1982), field section D82S3

Unit	Description	Thickness (metres)	Height above base (metres)
	GATEWAY FORMATION (incomplete)		
6	siltstone, quartzite, dark green; interbedded with light green siltstone		
5	gap	1.5	13.5
	NICOL CREEK FORMATION (12.0 m - incomplete)	3.0	12.0
4	siltstone, argillaceous, commonly graded with silty bases, thinly laminated; intercalated with thin-bedded dolomitic argillite; grades upward to interbedded thin to medium-bedded, green volcaniclastic sandstone and tuff		
3	basaltic lava, green to purple tinged, vesicular, amygdaloidal (quartz and minor secondary calcite); flows up to approximately 45 cm thick are graded from massive at base to vesicular at top	4.0	9.0
2	siltstone, mauve to green, thinly laminated, hornfelsed	2.75	5.0
1	siltstone, green, medium to thick bedded, thinly laminated, with micaceous parting planes; gradational contact with unit 2 above	2.25	2.25

SECTION 25 - H83S4
NICOL CREEK FORMATION; SKOOKUMCHUCK CREEK

Location: Along Skookumchuck Creek, 4 km west of Skookumchuck, elev. 1 040 m (3400 ft); NTS Skookumchuck 82G/13; UTM grid 585000E-5528000N
Measured by T. Høy (1983), field section H83S4

Unit	Description	Thickness (metres)	Height above base (metres)
	NICOL CREEK FORMATION (133.5 m - incomplete)		
8	partially covered, lava outcrops occur along strike to south	28.5	133.5
7	siltstone, green, minor mauve, thin bedded	12.0	105.0
6	covered; mixed green siltstone and lava scree	10.5	93.0
5	generally covered, lava outcrops occur along strike to south	12.0	82.5
4	lava, thick flows, generally green, minor purple, amygdaloidal to massive	30.0	70.5
3	covered	9.0	40.5
2	lava, green, generally thick massive flows, some amygdaloidal flows	15.0	31.5
1	lava, green, minor purple, massive, porphyritic with large hornblende crystals; amygdaloidal flows with quartz and calcite-filled amygdules, pillows common	16.5	16.5

SECTION 26 - D82Y6
PHILLIPS FORMATION; ECHOES LAKE

Location: 5 kilometres south of Skookumchuck, elev. 853 m (2900 ft); NTS Skookumchuck 82G/13; UTM 587550E-5524000N
Measured by L. Diakow (1982), field section D82Y6

Unit	Description	Thickness (metres)	Height above base (metres)
	PHILLIPS FORMATION (155.0 m ? - complete)		
3	quartzite, maroon, thin to thick bedded, commonly graded; interbedded with siltstone and intercalated silty argillite, maroon; graded siltstone-argillite, thin to medium laminations, mud-chip breccias, symmetrical ripple marks, cross-laminations, white micas on planar surfaces in silty argillite	66.0	224.0
2	gap; (steep slope with Phillips Formation debris)	155.0	158.0
	GATEWAY FORMATION (incomplete)		
1	siltstone, olive green, thin bedded	3.0	3.0

SECTION 27 - H82K4
CRANBROOK, GATEWAY FORMATIONS; PERRY CREEK

Location: 4 km due south of Marysville, elev. 1 220 m (approximately 4000 ft); NTS Cranbrook 82G/13; UTM grid 575100E-5494500N (base) to 575400E-5494550N
Measured by T. Höy (1982), field section H82K4

Unit	Description	Thickness (metres)	Height above base (metres)
	CRANBROOK FORMATION (260.5 m - incomplete)		
33	quartz wacke, quartzite, tan weathering, thin bedded; argillite, dark grey, laminated, lenticular bedded with thin quartzite lenses	9.0	326.5
32	siltstone, light grey-green, very thin bedded, commonly graded with dark grey to black argillite tops	4.5	317.5
31	dolomite (?), granular, with quartz grains scattered throughout, and concentrated in thin discontinuous lenses	8.25	313.0
30	magnesite, granular, with 15-20% very thin quartzite and green siltstone lenses throughout; these weather in relief producing a characteristic irregular weathered surface	4.5	304.75
29	granular, tan-weathering magnesite at base; grading upward to green siltstone, thin bedded, interlayered with green phyllite, tan magnesite	3.75	300.25
28	magnesite, tan weathering, coarse grained	6.75	296.5
27	quartzite, pink tinged, with irregular discontinuous lenses of brown-weathering magnesite; at base magnesite lenses and layers increase to 20-30%; minor green siltstone layers	5.25	289.75
26	siltstone, quartzite, thin bedded, mauve to grey, with discontinuous purple-tinged argillaceous siltstone lenses throughout; grading up to granular sandstone, mauve to grey with carbonate cement	6.0	284.5
25	calcareous siltstone, silty limestone, brown weathering, thin bedded, gradational basal contact	6.0	278.5
24	quartz wacke, grey to purple, tan weathering, thin bedded, irregular, wavy beds, calcareous cement at top; minor dark grey argillite partings	12.0	272.5
23	quartzite, with limestone lenses throughout	1.5	260.5
22	similar to unit 24, with minor calcareous siltstone lenses at top	4.5	259.0

Unit	Description	Thickness (metres)	Height above base (metres)
21	quartzite, quartz wacke, mauve to light tan, with irregular discontinuous dark patches throughout; quartzite, granular, with calcite cement; some large low angle crossbeds	12.0	254.5
20	magnesite, brown weathering, medium to coarse grained, with 5-10% irregular streaks of granular quartzite throughout; grades down section through intermixed granular quartzite and magnesite to predominantly brown to mauve quartzite and quartz wacke	18.0	242.5
19	quartz wacke, grey, thin bedded, with irregular, purple to dark grey streaking	6.0	224.5
18	quartz-feldspar arenite, grey to tan coloured, thick bedded, with prominent low angle tangential crossbeds	3.0	218.5
17	quartzite, white, coarse grained, impure, generally poorly sorted	2.5	215.5
16	fining upward sequence; at base (196.5-204.5 m), quartz arenite, grey to purple, relatively pure, medium, irregular bedded, with tangential crossbeds; grading up (204.5-212.0 m) through fine-grained, thin-bedded to medium-bedded grey quartz arenite; to green siltstone at top	16.5	213.0
15	fining upward sequence; thin-bedded gray quartzite with minor green siltstone interbeds at base, grading up to thin to very thin-bedded green siltstone	5.25	196.5
14	quartzite, white, coarse grained, thick bedded; minor interbeds of thin-bedded, impure grey quartzite near top	3.75	191.25
13	quartz arenite, white, pure, medium to thick bedded, massive, rare dark grey argillite partings	60.0	187.5
12	units 11 to 12 are a fining upward sequence; inter-bedded grey siltstone and orthoquartzite at base, thin bedded, grading up to fissile green siltstone near top; gradational contact with unit 11 below	3.0	127.5
11	quartz arenite, white, thick bedded	4.5	124.5
10	quartz arenite, grey, thin bedded, interlayered with phyllite, green, with irregular discontinuous pods of quartzite throughout; at base is thin-bedded quartz wacke and quartz arenite	3.75	120.0
9	quartz arenite, quartz wacke, thick bedded, with thinner bedded, finer grained quartz wacke near top	9.75	116.25

Unit	Description	Thickness (metres)	Height above base (metres)
8	fining upward sequence; quartz arenite, pure to feldspathic, thick bedded, sharp basal contact; grading up to interlayered siltstone and phyllite, green, at top	9.0	106.5
7	quartz arenite, feldspathic, buff weathering, thin bedded, graded, with green siltstone tops, crossbeds common	4.5	97.5
6	quartz arenite, pure, white, thick bedded, with minor siltstone 'partings'	14.25	93.0
5	fining upward sequence; quartz arenite, white, thick bedded, massive at base; grading up to thin-bedded feldspathic arenite, interbedded with green siltstone at top	12.75	78.75
	GATEWAY FORMATION (?) (58.5 m - incomplete)		
4	siltstone, purple, thin bedded, mud cracks; interbedded with phyllitic green siltstone; minor thin white quartzite layers at top; fissile grey to purple interbedded argillaceous siltstone and silty quartzite at base	13.5	66.0
3	siltstone, purple to red, thin bedded; green siltstone layers interbedded near base	31.5	52.5
2	siltstone, purple, with thin light green siltstone 'partings'	13.5	21.0
	NICOL CREEK FORMATION (7.5 m - incomplete)		
1	volcaniclastic sandstone, green; minor green volcaniclastic siltstone; lava flow at base	7.5	7.5